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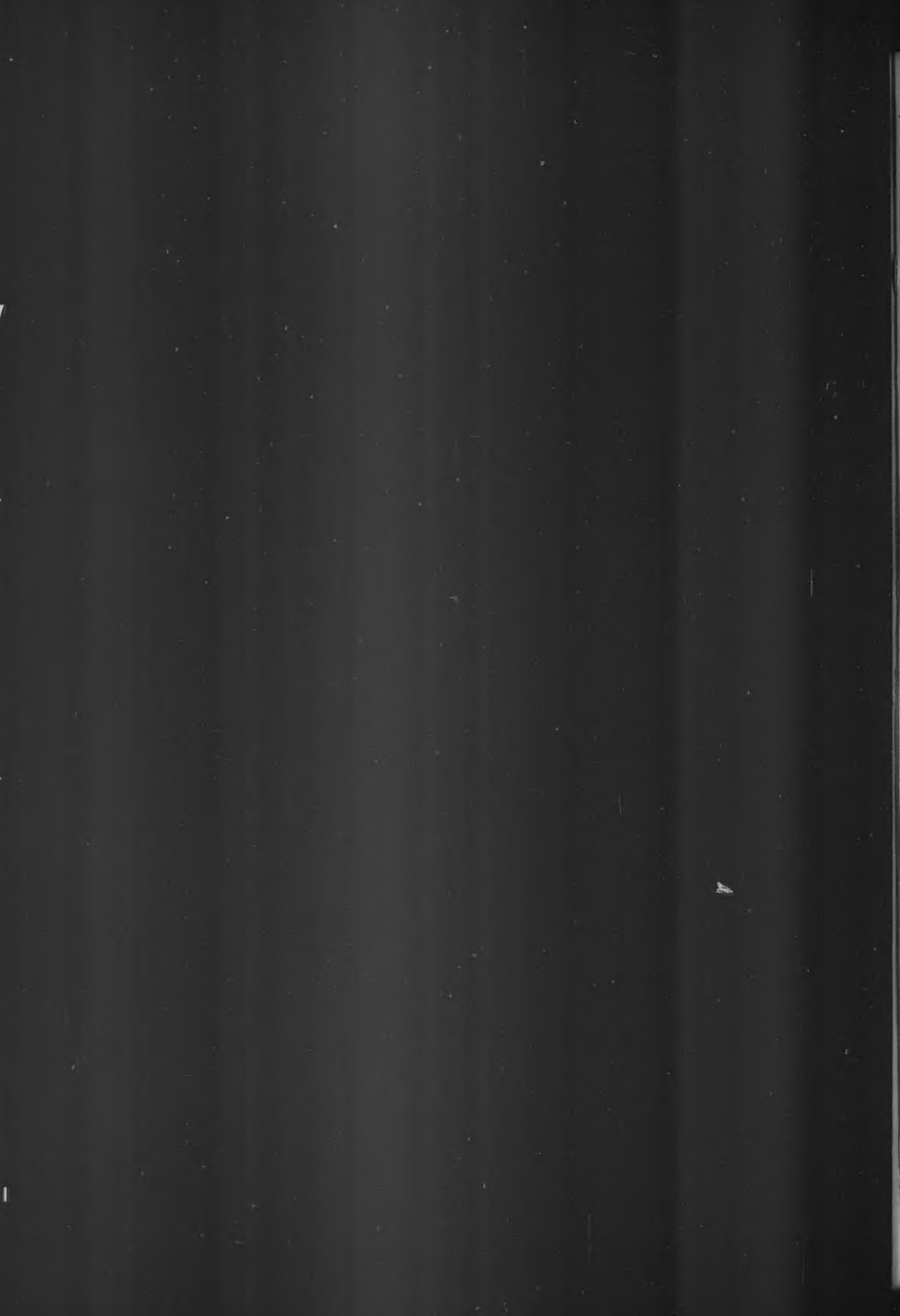
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ADULT CALIFORNIA CONDOR ON FAVORITE PERCH NEAR NESTING SITE;
TELEPHOTO VIEW

Photographed and Copyrighted by Finley and Bohlman

THE CONDOR A MAGAZINE OF WESTERN ORNITHOLOGY.



Volume X

January-February 1908

Number 1

LIFE HISTORY OF THE CALIFORNIA CONDOR PART II.—HISTORICAL DATA AND RANGE OF THE CONDOR ^a

By WILLIAM L. FINLEY

WITH PHOTOGRAPHS BY HERMAN T. BOHLMAN AND THE AUTHOR

THE report that the California Condor (*Gymnogyps californianus*) will soon become extinct is not without foundation. It has a range more restricted than any other bird of prey. Since the time when the western part of the United States was settled, the breeding range has contracted, and the condor's numbers have greatly decreased; altho it is still found in the wilder mountainous sections, it is nowhere common.

Formerly the California Condor was frequently seen about the mountainous regions of central and southern California. The birds were fearless and tame about their nesting places. There are many records of their being shot merely because they furnished good marks for irresponsible hunters who wandered thru these mountains.

The main cause which has been given for the decrease in condor numbers seems to be that when stock raising became common in California years ago, in order to secure pasture during the dry months, the rangers were compelled to drive their herds back into the more remote mountainous parts. Here they invaded the retreats of panthers, grizzlies, and coyotes. These preyed upon calves and sheep and created considerable damage. The quickest and best way of getting rid of these animals was by baiting the carcasses with poison. Since the condors came to feed on the poisoned animals, numbers of the big birds were undoubtedly killed in this way.

Almost any other bird might hold its own in the struggle for existence against

^a NOTE—My first article on the Life History of the California Condor was published in the Nov.-Dec., 1906, number. Since then Mr. W. Lee Chambers, who has been collecting data on the California Condor for several years, has kindly loaned me his notes and I have embraced some of these in the following article, which will be followed by a third article on the home life and habits of this bird.—W. L. F.

these forces, but the condor is too slow in recuperating its numbers. Even under favorable circumstances, each pair of condors will raise but one offspring a year. Oftentimes a pair of condors are very irregular in nesting. One collector states that in a certain locality where a pair of the birds live, they have nested but three times in about twelve years. Under these conditions it is not surprising that the condor numbers are decreasing, and unless the needed protection is given, this bird will undoubtedly follow the Great Auk.

If one were to begin collecting data on the California Condor, he would soon discover how little is really known. For a number of years, Mr. W. Lee Chambers has been collecting records to ascertain the exact number of the eggs of this bird that are in existence. These records reach up to the year 1906. At that time there were only forty-one eggs of this condor in the various museums and private collections of the world, while there are over seventy eggs of the Great Auk. There were about half a dozen of the birds in captivity.



CONDOR JUST DROPPING OFF HER PERCH IN FLIGHT;
TAKEN AT 1-1200 PART OF A SECOND EXPOSURE

bird had been known to the scientific world since mentioned by Shaw in 1779, yet neither the bird nor the egg had been properly described, except from hearsay. Both Douglas in 1827, and Townsend in 1837, as related in Audubon, failed to discover the nest or ever got to see the eggs. Douglas assumed and stated dogmatically that the color of the egg was "jet black", which information was secured from the Indians.

It is interesting to note that the egg taken at this time, from which Mr. Taylor secured his description, is still in existence. This is very likely the oldest egg of the California condor, and is now in the collection of J. H. Gurney in England. The egg was secured from a hunter who took it the last week in April, 1859. Mr. Taylor recounts that the egg was laid in the hollow of a tall oak tree near the summit of one of the highest peaks in the vicinity of Tularcitos, near a place called Cunejos. This is the only record we have of the condor ever nesting

Of the eggs, twenty-six are first class and fifteen second class. A number of eggs may have been taken in the early days, but very few of these are in existence at the present time. An egg in the possession of J. H. Gurney, England, was taken in April, 1859. As far as the records show, there were four taken about the year 1870, one in 1889, three in 1895, two in 1897, three in 1898, one in 1899, eight in 1900, three in 1901, six in 1902, one in 1903, and three in 1905.

The best early historical account of the California condor was published in Hutchings' California Magazine in the June, July and August numbers of 1859. It was written by Mr. Alexander S. Taylor. Altho the

in a tree, and altho this record has been repeated in many books on ornithology, it cannot be regarded as completely authentic. It may safely be said that the nesting site of the California condor is always a pot-hole in the side of a cliff, a cave, or a recess in behind a large rock on the steep mountain side. There is no effort at nest building, but the single egg is laid on the bare ground.

The egg which Mr. Taylor secured weighed ten and a half ounces and the contents weighed eight and three-quarter ounces. A specimen that was killed on the beach at Monterey at this time was carefully measured by Mr. Taylor. It weighed twenty pounds; from beak to the end of tail feathers it measured four feet and a half; from tip to tip of wing it measured eight feet, four inches; one wing, three feet three inches; tail feathers, twelve in number, fifteen inches long.

As to the size of a full grown California condor, Mr. Frank Stephens says: "I believe that a bird that measures full ten feet, laid on its back on the floor and marked at wing tips without really stretching the bird, is an exceptionally large



PAIR OF ADULT CONDORS ON A FAVORITE PERCH

bird." Mr. Stephens gives the measurements and weights of six different condors as follows: the first three killed at Julian, the fourth at Ballena, and the other two at Santa Ysabel, California.

1. March 13, 1888; length 44.1 inches; spread 102.4 inches (1120x2600mm.); female, not quite mature; weight 16 pounds.

2. May 11, 1888; length 45.7; spread 112.2 (1160x2850 mm.); adult male; weight 19 pounds, eviscerated.

3. June 2, 1888; length 43.1; spread 110.7 (1095x2795); weight 21 pounds.

4. June 25, 1888; length 44.3; spread 110; adult male; weight 20 pounds.

5. May 10, 1899; length 44; spread 112; female, not quite mature.

6. May 24, 1899; length 45; spread 112 (1140x2845 mm.); adult male.

Mr. Arthur Wilcox says, "The average weight of the California vulture is twenty pounds, twenty-six being the maximum. The spread of wings is nine feet,

eleven feet four inches being the largest I have collected. This was secured on the Loma Pelon Mountains in Santa Barbara County."

In some of our works on ornithology, the authors seem to think that the California condor lays two eggs, altho there is no authority for such a statement, except by analogy with the turkey-buzzard.

One collector states, "I know positively of three instances where they laid but one egg and no instance where they laid more than one. I have talked with other men that know and they say they lay only one egg at a setting, which I am satisfied is right." Another collector gives these facts, "A condor never lays a second egg in the same season. I have taken eight of them, and never more than one in a nest. Most people think that the bird lays two eggs. I have investigated several such stories and always found them to be buzzards' nests."

Major Bendire gives credence to an old wood-chopper who says he saw a condor's nest which was a huge affair, about seventy-five feet from the ground, on the first limb of a redwood tree. The place was near his camp where he had excellent chances of observation. He said that there were two young, and they were nearly three weeks learning to fly. To any one who has studied condor habits, this story discredits itself.

Fourteen different eggs of the California condor show the following measurements in inches: 2.48x4.08, 2.53x4.28, 2.55x4.39, 2.58x4.57, 2.59x4.52, 2.60x4.30, 2.62x4.38, 2.62x4.44, 2.62x4.52, 2.65x4.40, 2.68x4.28, 2.68x4.50, 2.70x4.50, and 2.73x4.22.

The size and strength of the condor have often been exaggerated. There have been many absurd stories about these birds killing sheep and other animals. A short time ago I saw an account in a daily paper of where a hunter claimed he saw a condor sailing away with a hind quarter of venison in its talons. Mr. Alexander Taylor makes the statement that this vulture has been known to kill and carry off a hare in its claws. It is extremely doubtful that one of these birds would ever attack a living animal. The habit of this vulture is to wait till after death. As to the condor's carrying its prey, this is easily discredited by a study of the condor foot. The claws are blunt and weak, and the foot is not adapted for grasping or carrying as an ordinary bird of prey.

In regard to the range of the California condor, it is sure to be somewhat vague as long as we have wide stretches of rough mountainous regions in the West where little or no study has been given.

Beginning at the south, Mr. Nelson and Mr. Anthony both record the bird in Lower California. Mr. Anthony states, "I found the bird more or less common along the extension of the San Bernardino Mountains, that are known in Lower California as the Lagoon Range. I often saw as many as three at a time, but never shot any. I have not found its nest, nor could the natives of that section give me any information. Some told me that it nested in the crags on the east side of San Pedro, which may very likely be true, but I doubt any one's being able to prove it. The Indians and Mexicans use the large quills from the wings to carry gold dust, and seldom allow a condor to escape."

Altho we have plenty of records of the condor in Lower California, we have none directly across the Gulf in Mexico proper. Mr. Ridgway states, "I do not know of any Mexican or Central American record of the California vulture. There are several from Lower California, but none from Mexico proper."

Among the earlier records, the bird was reported in Arizona, and it was said it had been seen as far east as Utah, but this last was rather vague.

Mr. Herbert Brown who was stationed at Fort Yuma for some time, and has

traveled extensively thru Arizona, says, "I regret that I cannot give you any information on the California condor."

Mr. George F. Breninger wrote, "I know of no instance of the California condor in Arizona."

Mr. O. W. Howard who spent many years in the Huachuca and Chiricahua Mountains of southern Arizona, both of which ranges extend into Mexico, has seen no California condors or found any trace of them.

This seems to settle fairly well the southern limits of the condor's range. We find a few scattered in the San Jacinto Range, which is a small range about forty or



ADULT CALIFORNIA CONDOR ON MOUNTAIN SIDE NEAR ITS NEST

fifty miles from the coast extending thru Riverside and San Diego Counties. A few have been noted in the lower end of the San Bernardino Range during recent years. Where the San Gabriel Mountains cut thru Los Angeles County, condors are a little more numerous, and from this district thruout the mountainous regions of Los Angeles, Ventura, Santa Barbara, San Luis Obispo, and Monterey Counties, the largest number of these birds are found, but they are nowhere common.

There have been a few straggling records of the condor north of Monterey County in California, but none of recent date.

Dr. J. K. Townsend informed Audubon that "The California vulture inhabits the region of the Columbia River to a distance of five hundred miles from its mouth and is most abundant in spring, at which season it feeds on the dead salmon that are thrown upon the shores in great numbers. It is also met with near the Indian villages, being attracted by the offal of the fish thrown around their habitations." He also stated: "The California vultures cannot be called, however, a plentiful species, as even in the situations mentioned, it is rare to see more than two or three at a time, and these so shy as not to allow an approach to within a hundred yards, unless by stratagem. Although I have frequently seen this bird, I have never heard it utter a sound. The eggs I have never seen, nor have I had any account of them, that I could depend upon. I have never heard of their attacking living animals. Their food while on the Columbia is fish almost exclusively, as this food is always found in great abundance near the falls and rapids—they also feed on dead animals. At Fort Vancouver I saw two feeding on the carcass of a pig." Altho Townsend's statement is convincing, some people have doubted the authenticity of this record, since no one has since recorded the California condor in the region of the Columbia River. Dr. Newberry, Dr. Suckley, and Dr. Cooper could find no other records of the bird in Oregon.

The most striking record on the present range of the California condor is one from Douglass County in southern Oregon. This seems very unusual, as we can find nothing else in recent years of the bird living between the San Francisco region and this place, altho it is a stretch of several hundred miles.

The Oregon records were given by Mr. George Peck and his son Mr. Henry Peck, who are both reliable ornithologists, and who were both well acquainted with the bird in southern California. Mr. Henry Peck informs me that on or about July 4, 1903, he and his father saw two California condors at Drain, Douglass County, Oregon. They were quite high in the air and were sailing about over the mountains. The elder Mr. Peck saw them several times after that. He states the birds were instantly recognized by both of them. Again in March, 1904, Mr. Henry Peck writes, "I saw four condors which were very close to me, almost within gun shot. I recognized them first by their size, and second by the white feathers under their wings. The birds were all flying very low, as there was a high wind blowing." Mr. Peck also gives the record of a condor that was killed on the coast of southern Oregon a number of years ago.

These records seem to show that if the California condor was formerly found in the region of the Columbia river, the numbers have decreased and the last of these northern birds seem to have taken refuge in the rough mountain regions of southern Oregon, while the range of the condor in California has contracted to regions from Monterey County south thru the mountains of the Coast Range and the extension of the San Bernardino Range into Lower California.

Portland, Oregon.

THE LOCUST-DESTROYING BIRDS OF THE TRANSVAAL ^a

By DR. FREDERICK W. D'EVELYN

THE relation of birds to agriculture is one of much importance and is worthy of the closest investigation as well as the fullest consideration in order to arrive at results which constitute a safe experience for practical application. The advance of civilization of necessity interferes with the natural order of things,

^a Paper read before the Cooper Ornithological Club of California, September 21, 1907.

disturbing the balance which nature at all times, in her own many varied methods, ever is desirous of maintaining.

Every agriculturist ought to be, in measure at least, also an ornithologist—a bird man, capable of intelligent observation, capable of estimating the results of such observations and thereby arrive at conclusions which would prove helpful in estimating the proper balance to be aimed at, the proper relation to be desired, say, between species and numbers, between natural and artificial food supply and such like factors of compensation.

Among the serious pests to the farmer in all parts of the world insects occupy a place of almost primary importance. I well remember the second day I was in South Africa. I strolled out into the bush; the day was warm and the verdure and softness of the turf suggested a most pleasant resting place. Scarcely had I lain down than I was covered with myriads of creeping things. Insects of all possible shapes and colors ran over my outstretched body. They were all strangers to me and not knowing their intentions toward me, a foreigner, I was not long in deciding that until we were better acquainted I would refrain from taking mine ease upon the "soft and silent turf." The climatic and physical conditions of such an immense area of land as the Transvaal of course modify in a very perceptible manner its avifauna; thus, long stretches of park-like lands, rich in bush and verdure; then perhaps great areas devoid of all save scrubby grasses but ultimately terminating, not infrequently, in river banks, dense in shrubbery and tall reeds. Such variation of necessity finds its counterpart in a varied bird life which, especially to a stranger, presented an almost irresistible fascination. Indeed not infrequently one was prone to overlook one's outpost duty and revel in the attractive and novel seduction of the brilliantly plumaged birds flitting to and fro, scarcely disturbed by the white intruder, who to them must have been in very truth a *rara avis*. With such memories as these it seems almost a misfortune to learn that civilization has stepped in, and on the old fighting grounds is found the uniformed inspector, the museum expert, or other representative of a Bureau of Entomology or a Department of Agriculture. Do not these investigators only too surely indicate that man's intrusion has upset nature's compensatory balances, and the harmony of supply and demand being broken, artificial aid must come to succor the friend or destroy the enemy of the farmer and orchardist?

We have today quite a corps of field experts doing service in the Transvaal and who by the reports forwarded to headquarters are not merely affording valuable assistance to the agriculturist but adding much important knowledge which is most helpful to the ornithologist.

Among the insect pests up-country in Transvaal, Orange River country and other regions none demand more serious consideration than the locust. The Red Locust and the Brown, both migratory in habits, are guilty of much injury to crops, ripened grain and even to the pasturage on the veldt. The mature insect, owing to its great powers of flight, is more injurious, but the insect in an earlier stage known to the Boers as "Voetganger" is capable of much destruction. Almost all of the local birds, even hard-bills, eat locusts, while some are such free feeders upon the insects that they have been classed as Locust Birds. Our esteemed colleague, F. Thomsen, Assistant Chief Locust Officer, in his last official report to the Department of Agriculture, gives some interesting notes, the result of his observations in the field; these conjoined with such facts as have been personally recorded will enable us to learn something regarding these feathered friends of the farmers of the Transvaal.

The locust is a powerful insect on the wing and to encounter a swarm in mo-

tion is an experience not much dissimilar to that of a hailstorm, the insects actually striking one's face with a violence almost painful. It is a fact of common observation that birds carefully avoid becoming entangled in a swarm of locusts, attacking the moving mass only from the rear and then only effectually when the swarm is small or gets subdivided. The insect itself soon seems to realize that it is being hunted and seeks to take cover either by dropping suddenly into the long grass or, as in the case of Voetgangers, creeping beneath clods of earth, stones or such cover.

It is very interesting to see a covey of birds following the line of fire, as the grass, fired by the natives to increase its growth, wends its way like a huge serpent across the veldt and kopjes. The heat naturally drives the insects from cover, and they become easy prey to the birds. The Glareola (Nordmann's Prantincole) or as the farmers call it, the small locust bird, is par excellence the leading species in the destruction of the locust. This bird is somewhat larger than a cowbird or oriole: back greyish shading away into the belly which is nearly white; the throat is brownish mottled and separated from the chest by a collar of dark brown or grey. The play of color observable when the bird is flying is owing to the fact that the upper surface of the wings is greyish or black while the underside is light or almost white.

The birds appear in large flocks about this season of the year, which you will remember is the South African spring time, and, as Mr. Thomsen reports, display a most marked method of attack. Thomsen says: "The birds get on the wing as if by word of command and fly and whirl round and round rising higher and higher till the swarm looks like an immense dust-cloud rushing skywards." Once a swarm of locusts is sighted they break away from their formation, follow up the insects and, flying in amongst them, greedily seize the body, while the wings and legs, being neglected, fall in countless numbers upon the ground. The attack is kept up with great determination until either the swarm is destroyed or its broken sections seek cover in the long grass or rocky soil.

The Glareola are birds of ancient history, being figured in the hieroglyphs of Egypt, and it is not unlikely that the children of Israel had fricassed "Locust Birds" when the Transvaal was an inland sea and the great divide of the Drachensberg formed the barrier line of the Indian Ocean.

Storks, the White-bellied (*Abdimia abdimii*) and the European (*Ciconia alba*) are both locust eaters of repute. I have seen these birds in abundance in the Rustenberg district, a most charming region, well watered and abounding in park-like glades and rich pasturage. In the spring when the young grass is rich in verdure the big bird with its white plumage, black wings, scarlet beak and red legs, becomes a very conspicuous sight and proves a subject of much interest as it rushes hither and thither after the nimble Voetganger or the more adult Springhaan, as the Boer names the fully winged locust. The White-bellied Stork is possibly more numerous than his above-named relative and a large flock seen at a distance is not infrequently taken for a herd of sheep.

Once when passing thru the Marico district a bird was pointed out to us as one of the locust birds. I am satisfied since reading Mr. Thomsen's report that it was one of the starlings, probably the Wattled Starling (*Dilophus carunculatus*). At this interval it is difficult to recall its description but that of Thomsen is very distinct. This bird, like the Glareola, is about the size of a cowbird, greyish brown all over; the wings and tail very dark with a greenish sheen upon them. The underpart of the abdomen and undertail coverts are a very pale greyish brown; around the eyes there is a bright yellow patch; on the throat of the males are two

black wattles from which the bird takes its name. There is also another wattle on the top of the head and one on the forehead close to the upper mandible.

Their presence always indicates locusts and if the supply is abundant the starlings will locate, build, and hatch their young. Unfortunately, however, it not infrequently happens that the supply of locusts runs short ere the nestlings are fledged, with the result that numbers die from lack of food.

The South African Kestrel (*Tinnunculus rupestris*) is a persistent enemy and will follow a swarm of locusts for miles, strangely avoiding the main body of the insects, seizing only the stragglers or tail-enders. These hawks of course catch the insect with their claws and dine in mid air while still upon the wing. It is reported by some of the earlier ornithologists that these hawks came from northern Africa, following the flights of locusts as they move southward, and being satisfied with their new quarters, took up their residence and became local varieties.

The Guinea Fowl (*Numida coronata*), so familiar in the bushes on the river banks, has not infrequently added a pleasant side dish to our scoff when on the up-country trek, we outpanned for the night, and, outstretched upon the grass, watched with impatient eyes our Kaffir boys prepare the evening meal. These birds, along with the legendary *Otis kori*, the Paauw of the Boers, the Crested Bustard of the ornithologist, a big bird of 30 or 40 pounds weight, but capable of outrunning, like our own famous *Geococcyx californianus*, a fleet horse; the Quail (*Coturnix capensis*); the cape turtle dove (*Turtur capicola*); the Hadadah Ibis, and many others must all be credited as aids to the agriculturist, so persistent are they in the destruction of locusts.

It would be an oversight even in this imperfect capitulation to omit reference to some of the "Tick Birds"—selecting by courtesy the graceful and not uncommon White Egret or Tick Bird (*Bubulcus lucidus*), a foe to the Voetganger, but not very effective inasmuch as they are dainty feeders, taking the precaution to "masticate" their prey before they swallow it, a slow process with the locusts in active flight.

They are a very showy bird and when seen in the early dawn seem almost spirit-like as they glide past on their way to the feeding grounds. The red-billed Oxpecker, a Tick Bird, but perchance only by renown, an emergency enemy of the locust, is such an interesting species that it is certainly worthy of mention. It is a bird somewhat larger than an English sparrow, multi-colored in plumage, with a very pronounced undershading of rich gamboge tint. It is amusing to watch it as it hunts for its food, the ticks upon oxen, horses and mules. Scarcely have you outspanned than the red-bill is alight upon the animals' backs; off it goes on its tour of inspection, clambering over, around, underneath; examining all flexures of the joints, around the eyes, the insertion of the tail, and such areas where the tender skin proves a favorite locality for the tick. Oftentimes have I been amused to see the little benefactor, with its head turned sidewise, peering into the anal socket, while the grateful animal lifts up the tail, only too glad to be freed from the dozen or more ticks which are invariably to be found in that region.

The bird is very active, ever on the *qui vive*, and it is difficult to obtain a specimen, for if disturbed it darts from one animal to another with great rapidity, and one hesitates to shoot an ox simply to obtain a specimen of *Buphaga erythrorkhyncha*.

One day just when the setting sun was gilding the long stretches of vlei, across which we were driving, a large bird sprang out of the grass and ran rapidly ahead of us. Altho I had never seen one before, the pen behind its ear, its peculiar gait with tucked up hinder extremities, as if to keep it out of the wet, told me it

was a specimen of the famed Secretary Bird (*Serpentarius secretarius*). Its plumage was varying shades of neutral tints, evidently protective coloring harmonizing with its surroundings; in length 51 inches with an expansion of 74 inches. The bird is strong on legs and wing, generally running a considerable distance before taking flight. It builds a gigantic nest, perhaps even larger than that of the King of Kopje, the Black Vulture (*Otogyps auricularis*). The nest is loosely put together, of coarse twigs, and not infrequently placed in the deep center of one of those thorn trees whose formidable spines have won an unenviable notoriety for the species in South Africa.

The Secretary, known to the Boers as the snake-eater, makes a meal of lizards, rats, meercats, locusts, or snakes, just as the menu provides. In his encounter with the latter he is seen at his best. No sooner does his keen eye locate a snake than he advances toward it, carefully but surely. When within striking distance the ear tufts and neck feathers are erected, the bird strikes out with its foot, somewhat after the manner of a game rooster, at the same time lowering a wing which it interposes as a shield to receive the stroke of the snake. The fight is generally one of but a few rounds, for the bird is an able fencer and succeeds very quickly in getting in a single blow which breaks the back of the snake. The bird immediately follows its advantage by implanting its foot upon the head and neck of the reptile, pressing them into the ground, while it delivers the *coup de grace* with its powerful beak. It then deliberately swallows the snake whole, beginning with the tail, and, as if to make death doubly certain, it bangs the head once again against the ground just as it disappears within the accommodating maw of the victor. This bird is so valuable as a scavenger that it is now upon the protected list.

One might linger longer and recount memories of the great vultures, those mighty factors in South African sanitation, or repeat legends of the White-necked Raven, associated in the hazy orthodoxy of the voretrekkers as the species which fed the exiled prophets, or might perchance hear again, as we have so often done, the weird affrighted cry of the Plover which threaten to reveal our presence as we carry despatches or steal ghost-like amidst the midnight shadows to outflank the watchful Zulu or cunning Matabele. But time forbids.

In conclusion let us only earnestly hope that future campaigns in South Africa may be those of the ornithologist and scientist, marching thrice-armed in the justness of their cause against an only too numerous and capable enemy, the insect pests, whose advance at times is as terrible and as destructive as an army with banners.

Alameda, California.

NESTING OF THE WESTERN HORNED OWL IN COLORADO

By ROBERT B. ROCKWELL

YEAR after year, as the first faint signs of approaching spring begin to manifest themselves and the familiar longing for the fields and woods asserts itself the writer's first thought has been of that much-sought-for nest of the Western Horned Owl (*Bubo virginianus pallescens*). But despite repeated inquiries, numerous "false alarms" and long hard trips during many different years it was not until the spring of 1907 that the long-looked-for nest was discovered.

Repeated failure had created a rather vague impression that a Horned Owl's

nest was some sort of a myth or that a charm of some kind protected it from discovery, and it was with a decided lack of confidence that the search was renewed for another year, early on the morning of March 10, 1907.

A brisk ride of ten miles brought us to our field of operations: a typical prairie creek with a wide sandy bed, over which very little water was flowing, and bordered on either side by low bluffs and occasional groves of cottonwoods and scrub willows.

Practically the only signs of spring discernible were a few scattered Robins, new arrivals from their winter homes, an occasional blade of green grass and a flock of noisy Red-winged Blackbirds at the very top of a tall naked cottonwood, each apparently trying his best to outdo the melodious "kong-ker-ee" of the rest.

After following the course of the creek about a mile we came to a grove which filled every requirement for an ideal nesting site of our friend Bubo. The grove lay between the creek bed and an abrupt bluff protecting it from the north, and at the foot of which lay a slough overgrown with tules, cattails and rank grass, now dead, dry and yellow but furnishing excellent cover for a variety of small bird life. The timber was very dense in places and more open in others, affording a welcome retreat for almost any type of bird and thus an abundance of food for any predatory birds hunting in the grove.

We had almost completed a thoro search of the grove without results when out flopped a big owl from a dense scrub willow tree within a few feet of us. A close scrutiny of the tree failed to reveal a nest, so a systematic search of the grove was begun. As no dead trees of any size were seen we concluded that the nest must be in one of the old magpie's nests which abounded all thru the grove. So arming ourselves with sticks we began an animated bombardment of each nest. After considerable hard work and as we were nearing the outer edge of the grove a nest was encountered which was so small and dilapidated in appearance that it hardly seemed worth while to throw at it, but as the second stick thrown crashed heavily against the nest Mrs. Bubo rose clumsily from the nest and launching herself slowly into the air silently flapped out of sight.

Just how long it took the writer to climb that tree is not part of the story but it was pretty close to 0:00 flat, and as his head came to a level with the nest there



WESTERN HORNED OWL ON NEST

lay one great, round, pearly white egg in a downy bed of fluffy yellowish feathers.

The nest was a badly dilapidated magpie's nest from which all of the top had weathered away except a portion which shielded the bird from the north, leaving a rather flat platform of sticks not unlike an old hawk's nest, and was situated about 15 feet from the ground in a small cottonwood tree about 8 inches in diameter. The depression of the nest cavity was quite shallow and was unlined except for a thin layer of feathers from the parent's breast, upon which, together with some dead leaves and similar trash the egg was deposited.

After taking a few preliminary notes we left the nesting site as quietly as possible in order not to disturb the birds any more than was necessary. A week later we returned and carefully approached the nest. The owl evidently heard us and as she raised up we could plainly see her head above the rim of the nest.



NEST AND EGGS OF THE WESTERN HORNED OWL

We promptly got our cameras into action and after making a couple of exposures from the ground, climbed a tree about 25 feet from the nest in order to get a better view of the brooding female. This did not seem to frighten her, but when we got about half way up a tree within 15 feet of the nest the old bird flopped off the nest and out of sight.

An examination of the nest revealed two eggs in which incubation had begun. The nest contained many more feathers than on the previous week and as a breeze was blowing these nodding feathers gave the interior of the nest a beautifully soft downy appearance. By climbing an adjacent tree and lashing the camera to a limb we secured a close view of the nest and eggs, and then by careful work, after winding the nest securely, we cut down the tree and, loading it into the wagon nest and all, carried it in triumph to the Colorado Museum of Natural History

where it will no doubt form part of an environmental group at no greatly distant date.

During all the time we were photographing and removing the nest we did not catch sight of either of the parent birds, in fact we did not see the male bird at all on our second trip to the nest.

Spurred on by our success we made a trip to another spot fully ten miles from where the nest was found, where Horned Owls had been reported; but altho both birds were flushed, an exhaustive search on this and a later day failed to reveal a nest. These birds while living in this particular locality thruout the year were apparently not nesting.

From the above statements it might be inferred that the Western Horned Owl is a rare bird in Colorado. Such however is hardly the case; in fact, in certain isolated localities it is reasonable to assume that it is fairly common. It is true that the omnipresent "small boy with a gun" has practically exterminated the species in the immediate vicinity of Denver, but along many of the creeks on the plains east of Denver which afford sufficient food and cover the Horned Owls are of regular and rather frequent occurrence. Thruout the mountainous western portion of the state the birds occur regularly but I have never seen them in any numbers. Whether this is due to lack of observation or to an abundance of cover and a real scarcity in numbers I am unable to state. At any rate I do not think the birds are as common anywhere in the state as they are along the well wooded prairie streams.

As is the case with the typical form of the Horned Owl, the western form chooses various nesting sites. Cavities in large trees and in sandstone ledges, deserted hawk's nests and even nests on the ground have been reported, but probably owing to their great abundance and the natural advantages they offer, deserted nests of the magpie are more commonly resorted to than any other site.

The very early date at which nidification takes place and the quiet and inconspicuous habits of the birds during the nesting season probably accounts for the scarcity of eggs of this subspecies in collections, and these reasons are also probably responsible for the way in which these birds withstand constant persecution, not only from hunters but from ranchmen as well, for every farmer seems to feel it a solemn duty to do his share toward exterminating the entire owl family.

It has been said and possibly it is true that the Horned Owl is the most destructive of North American birds, but even if this be true, it is certainly a fact that what damage the comparatively few individuals of the species, to be found in any given locality, really do is not sufficient to brand them as a natural menace, and the amount of good they do in destroying small rodents should certainly be a strong point in their favor.

But when all other arguments for a sweeping bird protection fail to convince, we can always fall back on the fundamental fact that Nature knows how to conduct her affairs very well and if those who are over-anxious to exterminate any creature regarding whose economic usefulness there is a question would rest from their labors of carnage and let the natural laws take their course, the ultimate results would probably be fully as satisfactory. The natural order of things was normal when we came and will be normal after we are gone. Why not let a wise Nature of which man is but an insignificant part rule without our interference? >

Denver, Colorado.

E. L. L.

Leading tree, nest & all into
wagon for museum!

NORTHWESTERN COLORADO BIRD NOTES

By EDWARD R. WARREN

THE last of March, 1907, the writer went to Sulphur Springs, Grand County, Colorado, for the purpose of collecting, mammals being, as usual, my specialty. I remained there until May 7, collecting in that vicinity; and on that date, with Mr. J. W. Frey as assistant, I started on a week's trip to Grand Lake, 28 miles from Sulphur Springs, and farther back in the mountains. We returned to Sulphur Springs, and on the 16th of May Frey and myself started out on the route shown on the accompanying map. We had a covered wagon and pair of horses, and camp outfit, so that we were pretty independent. Altogether we drove about 650 miles, exclusive of the Grand Lake trip, and thru all sorts of country,



NORTHWESTERN CORNER OF COLORADO, SHOWING ROUTE TRAVERSED BY E. R. WARREN

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and were at various elevations, from 5374 feet at Newcastle, to 12,000 feet and over near our Boreas Pass camp on the Continental Divide.

As would be expected over such a route, there was great difference in the physical and biological characters in different portions. Sulphur Springs has an elevation of 7,665 feet, situated in the Middle Park, a rolling well-watered tract just at the west edge of the foothills of the Continental Divide. Some of the hills are quite well timbered, especially on the north slopes, tho the trees are not large. They are mostly pines; quaking aspens are also common. There is much sage-brush in the open country. Grand Lake is more in the mountains, at an elevation of 8,300 feet. The lake is two or three miles long, and a mile or more wide, with thickly timbered hills coming down to its very edge all about. There is a small town here, and it is quite a summer resort in a small way.

Going west from Sulphur Springs our route kept us mostly at the higher alti-

tudes as far as collecting was concerned, until we got to Yarmany Creek, near McCoy, in the cedar and pinyon belt, at 6,800 feet. Thence we crossed into Egeria Park, and went on to Yampa, 7,700 feet. From here on, as long as we followed the Bear River Valley, we gradually reached lower elevations, until at Snake River, seven miles above its confluence with the Bear, we were at 5,850 feet, in a dry desert country with sage brush and chico in abundance. From here we went to Douglas Spring, fifteen miles farther, and in the cedars and pinyons again at 6,700 feet. We went there especially for the Utah Chipmunk (*Eutamias dorsalis utahensis*), which comes into this portion of the state only. The Colorado range of three other species of small mammals, namely, *Eutamias minimus*, *Callospermophilus wortmani*, and *Neotoma cinnamomea*, is restricted, so far as at present known, to this northwest corner. These are all pale, arid land forms.

From Douglas Spring we back-tracked to the Snake, and then went down it to the Bear River, at Lily P. O., at Mr. F. C. Barnes' ranch, where we camped twenty-four hours, and then ferried the outfit across the Bear in rowboats: rather a strenuous undertaking, as the wagon had to be unloaded, body and top lifted off, wheels taken off, and the whole thing torn apart generally, and then everything put together again on the other side; but all was taken across safely, and the horses made to swim, which they did in good shape. Later in the season we could have forded, but were in too great a hurry to wait for the river to run down. We camped that night among the willows and mosquitos, especially mosquitos.

It was a dry drive from Lily to Meeker, 60 miles, only two or three watering places along the road until we got close to the latter place. From Meeker on we usually had plenty of water, sometimes too much, when it rained. The valleys of the White, Grand and lower Eagle Rivers are quite similar and, what one usually finds in western Colorado, fertile lands, but where not cultivated and irrigated covered with much sagebrush, hills sloping down on either side, with aspens on the lower slopes, and pines or spruces above.

For certain reasons I wished to go by way of Breckenridge, and hoped to cross from Red Cliff to Ten Mile Creek, and then it was but a little way to Breckenridge. But we found by inquiry that this road, if not impassable, would be at best a pretty tough proposition. So, instead of taking that route, we drove over Tennessee Pass to Leadville, then turned back and crossed Fremont Pass to the Pacific Slope again, thence down the Ten Mile and up the Blue to Breckenridge. And then we crossed the Continental Divide once more at Boreas Pass. The airline distance between Tennessee and Boreas Passes is only about 18 miles; but we traveled several times that between them. From Boreas it was down thru the South Park country, and over the Hayden Divide, and then thru the Ute Pass to Colorado Springs and home, on August 12. The life zones traversed covered everything from the Upper Sonoran to the Alpine.

During all this time I devoted myself practically exclusively to mammals, and birds were but a *sidé* issue, not many being collected. If we had looked more for birds I have no doubt but that this list would be much longer. The early part of the season was cold and stormy; it was not until the end of the first week in June that we had really good settled weather. The migrations seemed late, tho my notes on that subject are not of much value; traveling as we did from the higher to the lower altitudes during the migrating season, we were moving in a contrary direction to the migrants, and usually stopping for only a few days at each place, but little could be told as to the birds' movements.

I wish to acknowledge here my appreciation of Mr. Frey's services. Tho his special duties were to look after the team and camp outfit, and to see that we had

something to eat with more or less regularity, he was far too energetic to let that be all, and taking as much interest in the object of the trip as I did myself, he really did as much collecting as I, and was of great assistance in preparing specimens. The following is a list of the birds observed:

1. *Colymbus nigricollis californicus*. Eared Grebe. Common at Grand Lake, May 10-12.

2. *Hydrochelidon nigra surinamensis*. Black Tern. Seen June 1, flying about over the meadows along Bear River, five miles above Steamboat Springs. A dozen or fifteen were seen.

3. *Merganser americanus*. American Merganser. A duck we supposed to be of this species was seen on Bear River, near Steamboat Springs, June 6 and 8.

4. *Fulica americana*. American Coot. One or two seen on Grand Lake, May 10.

5. *Phalaropus lobatus*. Northern Phalarope. June first I killed one on a little branch of Oak Creek, about 8 miles above Steamboat Springs. It seems rather a late date for the bird to be there as it does not breed in Colorado.

6. *Ardea candidissima*. Snowy Heron. One was seen on a bar in Grand River, near Kremmling, May 17.

7. *Porzana carolina*. Sora. One was caught in a trap set for muskrats, in a slough at Lay. At that date, June 17, it was no doubt breeding there.

8. *Actitis macularia*. Spotted Sandpiper. Seen practically everywhere we went that there were any streams or water. A nest and eggs were found at Lily, Routt County, June 30.

9. *Oxyechus vociferus*. Killdeer. The first one was seen May 12, on Stillwater Creek, between Sulphur Springs and Grand Lake. After that seen pretty much everywhere we went.

10. *Dendragapus obscurus*. Dusky Grouse. Seen at Sulphur Springs, and near our camp at Sheephorn Pass, in Grand County.

11. *Lagopus leucurus altipetens*. Southern White-tailed Ptarmigan. Only one was seen during the trip, while we were at Boreas Pass; in fact this was the only time we were in a locality inhabited by them.

12. *Centrocercus urophasianus*. Sage Grouse. Seen in the vicinity of Sulphur Springs during my stay there. June 14 we saw a hen with three chicks about two weeks old, about 8 miles west of Craig. The next day, at Lay, we saw another hen and three young, the latter being much larger than those seen the previous day. July 5, I saw well grown young near Meeker. The bird is quite numerous in some localities.

13. *Zenaidura carolinensis*. Mourning Dove. First seen May 12, at Stillwater Creek, between Grand Lake and Sulphur Springs. After that seen everywhere. Nests and eggs found at Craig, June 12-13, and one nest and eggs near Douglas Spring, June 27.

14. *Cathartes aura*. Turkey Buzzard. Seen near Craig, at Sand Creek, and Snake River, Routt County; and near Meeker.

15. *Circus hudsonius*. Marsh Hawk. Not as many seen as one would expect, and these were mostly at various places in Routt County. The only other locality was Mud Springs, Garfield County, on the White River Plateau.

16. *Buteo borealis calurus*. Western Red-tailed Hawk. Seen at Sulphur Springs March 29. After that they were seen more or less frequently everywhere we went.

17. *Aquila chrysaetos*. Golden Eagle. Seen at Yampa, Oak Creek, below Steamboat Springs, and on Snake River, all in Routt County; and one at White

Rock about 12 miles above Meeker. Probably fairly common thru most of the region traversed.

18. *Falco sparverius*. Sparrow Hawk. First seen at Sulphur Springs April 20, after that common everywhere.

19. *Bubo virginianus pallescens*. Western Horned Owl. One seen sixteen miles below Steamboat Springs, and two near Mud Springs.

20. *Speotyto cunicularia hypogaea*. Burrowing Owl. During the whole trip, and in spite of the fact that we passed thru numerous prairie dog towns, we saw but two burrowing owls, which were seen June 17, in a deserted dog town about halfway between Lay and Sand Creek, Routt County.

21. *Ceryle alcyon*. Belted Kingfisher. First seen at Sulphur Springs April 30; after that seen here and there along the Grand and Bear Rivers, and also on the Eagle River.

22. *Sphyrapicus varius nuchalis*. Red-naped Sapsucker. One taken at Grand Lake, May 10.

23. *Melanerpes erythrocephalus*. Red-headed Woodpecker. A male seen June 10, about five miles below Steamboat Springs.

24. *Melanerpes torquatus*. Lewis Woodpecker. Seen on Oak Creek, above Steamboat Springs; at several points between the latter place and Craig; and one at Green Mountain Falls, at the very end of the trip.

25. *Colaptes cafer collaris*. Red-shafted Flicker. First seen at Sulphur Springs, March 29, and were common by April 3. We saw them everywhere we went. I saw one near Boreas Pass at about 12,000 feet elevation.

26. *Phalacroptilus nuttallii*. Poorwill. Two were collected at Craig. Their notes were heard in the evening at various places along our route.

27. *Chordeiles virginianus henryi*. Western Nighthawk. Seen frequently from Steamboat Springs to the end of the trip.

28. *Selasphorus platycercus*. Broad-tailed Hummingbird. Three males of this species were taken, two near McCoy, and one at Steamboat Springs. Hummingbirds were frequently seen, but these were the only ones collected. At Steamboat Springs, June 8, we saw a female hummer at work building a nest, just begun and placed in small overhanging limbs of a cottonwood tree, close to the trunk.

29. *Tyrannus tyrannus*. Eastern Kingbird. Seen ten miles above Steamboat Springs, below Hayden, at Craig, and near Lay, all in Routt County.

30. *Tyrannus verticalis*. Western Kingbird. First seen May 16, between Sulphur Springs and Kremmling. After that date they were seen frequently during the whole trip. June 13, Frey found near Craig a nest with five well feathered young in a little cavity near the top of one of the low adobe bluffs along Fortification Creek. At Hiner and Jones' ranch, Big Beaver Creek, near Buford, Rio Blanco County, there was a nest with young only a few days old on the end of the ridgepole of the cabin we camped in. It is quite possible some of the birds seen may have been *T. vociferans*; as none were collected there was, of course, a chance for mistakes in identification, but I think there is little doubt that the great majority were *verticalis*.

31. *Myiarchus cinerascens*. Ash-throated Flycatcher. Several were seen at Douglas Spring; and one was seen near Dotsero, Garfield County.

32. *Sayornis saya*. Say Phoebe. First seen at Sulphur Springs April 25. It was seen here and there during the trip, but not as often as one would have expected.

33. *Contopus richardsonii*. Western Wood Pewee. Seen at Steamboat Springs, and between there and Craig.

34. *Otocoris alpestris leucolæma*. Desert Horned Lark. Seen at various places

during the trip, in the open country; also seen above timberline, near Boreas Pass, at 12,000 feet.

35. *Pica pica hudsonica*. Magpie. Seen about everywhere we went, except on Boreas Pass. At Oak Creek, Routt County, we found a nest with four young, apparently about eighteen days old.

36. *Cyanocitta stelleri diademata*. Long-crested Jay. This species was not seen as often as one would expect. It was seen at Grand Lake, and at various points between Sulphur Springs and Steamboat Springs, and not seen again until we were coming up Eagle River, below Tennessee Pass. From Leadville to Colorado Springs it was seen at many places except at the highest altitudes.

37. *Aphelocoma woodhouseii*. Woodhouse Jay. Observed at the following points: near McCoy; Snake River, above Lily; Douglas Spring; near Newcastle and Glenwood Springs; Eagle, and Allenton.

38. *Perisoreus canadensis capitalis*. Rocky Mountain Jay. Seen, of course, only at the higher elevations. One was seen at Sulphur Springs; several near Sheephorn Pass; at Mud Springs, July 13, where they were moulting; near Kokomo; and at Boreas Pass, August 2-5, still moulting.

39. *Corvus corax sinuatus*. American Raven. Noted at various places in Grand, Routt, and Rio Blanco Counties.

40. *Nucifraga columbiana*. Clarke Nutcracker. Seen at Sulphur Springs; near Sheephorn Pass; Breckenridge; Michigan Creek, below Jefferson; and at Florissant. It is a bird which seems to be rather local in its distribution in Colorado.

41. *Cyanocephalus cyanocephalus*. Pinyon Jay. Seen at a few places in or near the cedar and pinyon belts as follows: near McCoy; Snake River, a few miles above Lily; Douglas Spring; White River, below Big Beaver Creek; and 12 miles above Glenwood Springs, in the Grand River canyon.

42. *Dolichonyx oryzivorus*. Bobolink. As we were driving along one of the toughest roads I ever got onto, about five miles above Steamboat Springs, I saw several birds in the road and on the fences alongside which I did not at first recognize, then suddenly realized they were Bobolinks, a bird that I had not seen for many a year, as they are rare and local in Colorado. Here were ten or a dozen of them, both sexes, and a male was secured as evidence that I was not mistaken. This was June first; on the eighth we saw more in a meadow one and one-half or two miles below Steamboat Springs, and judging from their actions they had not yet finished mating. On the tenth we saw some in the Elk River Valley, about ten miles below Steamboat Springs. Mr. F. H. Hopkins, in *Auk*, Vol. 23, p. 461, 1906, reports them as breeding near Meeker, Rio Blanco County.

43. *Molothrus ater*. Cowbird. Seen at many places along our route, and practically from one end to the other.

44. *Xanthocephalus xanthocephalus*. Yellow-headed Blackbird. Seen only in a few places: between Sulphur Springs and Kremmling; a few miles above Steamboat Springs; 15 miles below Steamboat Springs; and near Gypsum a single male was seen with a flock of Cowbirds and Brewer Blackbirds.

45. *Agelaius phoeniceus*. Redwinged Blackbird. Noted frequently in suitable locations.

46. *Sturnella neglecta*. Western Meadowlark. Observed nearly everywhere, tho for some reason we did not notice any along the Grand and Eagle Rivers.

47. *Icterus bullocki*. Bullock Oriole. Seen only at Steamboat Springs and a few miles below that place. It seems strange that we did not see more of them, but that

is partly accounted for by the fact that at many places we were away from trees such as they like.

48. *Euphagus cyanocephalus*. Brewer Blackbird. I saw the first at Sulphur Springs May 1. After that they were seen everywhere we went and were usually very common. Nests and eggs were found at Steamboat Springs June 1 to 8.

49. *Carpodacus cassinii*. Cassin Finch. Seen at Grand Lake; near Sheephorn Pass; at Douglas Spring; at Mud Springs; and at Boreas Pass.

50. *Leucosticte atrata*. Black Leucosticte. One was seen April 6 at Sulphur Springs in company with a large flock of Juncos. It was storming and snowing at the time.

51. *Leucosticte australis*. Brown-capped Leucosticte. Seen only at Boreas Pass, in early August.

52. *Acanthis linaria*. Redpoll. April 14, I saw four at Sulphur Springs.

53. *Astragalinus tristis*. Goldfinch. One or two seen with flocks of Pine Linnets several miles below Steamboat Springs, and also, if I remember correctly, near McCoy.

54. *Spinus pinus*. Pine Linnet. Observed usually in flocks, at various places from Sulphur Springs to Hayden; at Mud Springs; Allenton; Minturn; Breckenridge and Boreas Pass.

55. *Poecetes gramineus confinis*. Western Vesper Sparrow. Seen first at Sulphur Springs April 26; after that they were seen everywhere, and were common.

56. *Passer domesticus*. English Sparrow. These nuisances were seen at the following places: Sulphur Springs (only a few); near McCoy; Yampa; Steamboat Springs; Hayden; Meeker; Glenwood Springs; Eagle; Wolcott; and Jefferson.

57. *Chondestes grammacus strigatus*. Western Lark Sparrow. Seen at only a few places: near the lower bridge over Snake River, and between there and Lily; near Wolcott; near Pando Station, on Eagle River, 9,200 feet; and near Florissant. This is another bird which should have been seen more frequently.

58. *Zonotrichia leucophrys*. White-crowned Sparrow. First one seen at Sulphur Springs May 2. Thence it was seen along the road until about 15 miles below Steamboat Springs. It was not seen again until we got up toward the head of Eagle River. At Boreas Pass many were seen among the dwarf spruces at timberline, 12,000 feet, and some acted as if they had nests or young about, tho I could find none. This was on August 4.

59. *Spizella socialis arizonæ*. Western Chipping Sparrow. Seen at many places between McCoy and the end of the trip.

60. *Spizella breweri*. Brewer Sparrow. First seen near Craig, and thence between that place and Meeker. An inhabitant of the sage brush plains, and fairly common where found.

61. *Junco hyemalis connectens*. Intermediate Junco. One seen March 30 at Sulphur Springs.

62. *Junco mearnsi*. Pink-sided Junco. Seen at Sulphur Springs at various times between April 2 and May 5.

63. *Junco caniceps*. Gray-headed Junco. At Sulphur Springs, on my arrival, this was by far the most common Junco. Besides Sulphur Springs it was also seen at Grand Lake; Sheephorn Pass; near summit of pass going down into Egeria Park; near Steamboat Springs; at Red Cliff; Breckenridge; Boreas Pass; Tarryall Creek; and Green Mountain Falls.

64. *Melospiza cinerea montana*. Mountain Song Sparrow. Noted at Sulphur Springs; near McCoy; Yampa; between Hayden and Craig; Eagle and Allenton.

65. *Pipilo maculatus megalonyx*. Spurred Towhee. Seen near lower bridge

over Snake River; near Douglas Spring; at Lily; and on Elk Creek, above Newcastle.

66. *Oreospiza chlorura*. Green-tailed Towhee. First seen May 11, near Grand Lake. Observed practically everywhere between Sulphur Springs and Craig, and then not noted again until we got to Douglas Spring. It was seen along the road between Lily and Meeker, and from there on at various points.

67. *Zamelodia melanocephala*. Black-headed Grosbeak. Seen on Oak Creek; at Steamboat Springs; Hayden; Lily and Allenton.

68. *Cyanospiza amœna*. Lazuli Bunting. Seen at Meeker; near Glenwood Springs, and twelve miles above the latter place.

69. *Calamospiza melanocorys*. Lark Bunting. Observed at Yampa and above Steamboat Springs; we were told of them near Craig, and our informant said they were the first he had ever seen there, and he had lived there nine years; at Lay on June 15-16 they were still mating, at least each of us at different times saw two males pursuing a female. They were seen at Sand Creek. After that no more were seen until we neared Florissant, when we saw a mixed flock, males, females and young.

70. *Piranga ludoviciana*. Western Tanager. Seen near McCoy; at Steamboat Springs; Douglas Springs; and below Minturn.

71. *Progne subis*. Purple Martin. Several were seen flying about at Mud Springs, on the White River Plateau, 8,850 feet, and also on the West Fork of Elk Creek, about eight miles above Newcastle. Messrs. Cross and Baker told me that the Martin was to be found about Glenwood Springs. The bird is very locally distributed in Colorado.

72. *Petrochelidon lunifrons*. Cliff Swallow. No Cliff Swallows were seen until we passed Craig, and thence we saw them here and there all along the road, often very abundantly. A large colony was nesting under the lower bridge over Snake River.

73. *Hirundo erythrogaster*. Barn Swallow. This species was seen at only a few places, viz: eight miles below Hayden; at Lay; and at Florissant. But it is no doubt much more abundant thru the territory traversed than this would seem to indicate.

74. *Tachycineta thalassina lepida*. Violet-green Swallow. First of the season seen at Grand Lake May 12. Thence more or less common everywhere we went.

75. *Lanius ludovicianus excubitorides*. White-rumped Shrike. For some reason we only saw this bird on two occasions, between Sulphur Springs and Grand Lake, May 11; and at Kremmling, May 16.

76. *Dendroica æstiva*. Yellow Warbler. First seen near Yampa, May 26. Thence it was seen nearly everywhere we went, and was quite common.

77. *Dendroica auduboni*. Audubon Warbler. Seen at comparatively few localities, but that was because much of our route was at a lower elevation than the birds' breeding range. It was seen at Sheephorn Pass; Yampa; Steamboat Springs and a few miles below; and at Douglas Spring.

78. *Icteria virens longicauda*. Long-tailed Chat. There were numbers about the thick willows on the south side of the Bear River at Lily, and they were also seen at Allenton.

79. *Anthus pensilvanicus*. American Pipit. Seen near Spitzer's about twelve miles above Sulphur Springs, May 13. In spite of the fact that there were several inches of new snow on the ground at the time, and still snowing, the birds were taking a bath in a little stream which the road crossed. The species was also seen at timber-line at Boreas Pass.

80. *Cinclus mexicanus*. Water Ouzel. Seen at a number of places along the streams at the higher elevations.

81. *Oroscoptes montanus*. Sage Thrasher. Seen at Yampa. They were common on the sagebrush plains about Lay, and thence to Douglas Spring, and from there to Meeker. Near the lower bridge over Snake River, on June 22, we found a nest with five eggs.

82. *Mimus polyglottos*. Mockingbird. Frey shot one May 23, at Yarmany Creek, near McCoy, altitude 6,800 feet. This seems to me rather an unusual record for the bird.

83. *Galeoscoptes carolinensis*. Catbird. Seen at lower bridge, on Snake River, and at Allenton.

84. *Salpinctes obsoletus*. Rock Wren. Seen at various places where the country was suited to its habits.

85. *Troglodytes aedon aztecus*. Western House Wren. The first one was seen May 18, near Sheephorn Pass, 8,200 feet. Seen at many places after that. At Steamboat Springs we had a most interesting experience with a pair. We stopped at that place from the first until the tenth of June. On the morning of the fourth I discovered a lot of twigs in the jockeybox of the wagon, which had been left open over night, and soon a wren appeared with another stick and added it to the collection. The wagon stood about parallel with and 12 feet from one side of the tent, and about midway between the front end of the wagon and the rear end of the tent was an aspen tree. We nailed an empty fruit can to the tree in such fashion that there was only a small entrance hole. Then threw the sticks out of the jockeybox, closed it, and awaited developments. The birds came back and investigated, and presently began to build in the can. They did not utilize any of the stuff we had thrown out, but brought new. Once they, or the female, threw everything out of the can, and began all over again. They worked daily until we left, but seemed to do most of their work early in the morning. I often heard the male singing at daylight, apparently right over the tent. When we left the can was full of sticks, but the birds were still working. As we were suspicious characters the town marshal had been a daily visitor at our camp, and on our departure we left the nest under his special charge, and he promised to "make it hot for any kid who monkeyed with it." I have never heard if they raised a family or not.



HOUSE WREN ABOUT TO ENTER HER NEST

86. *Sitta carolinensis aculeata*. Slender-billed Nuthatch. Seen only at Douglas Spring, and on Tarryall Creek, but should be in other localities.

87. *Sitta pygmaea*. Pigmy Nuthatch. Seen at Sulphur Spring; near McCoy; at Douglas Spring; and near Florissant. Should be at other places we visited, but we did not happen to see them.

88. *Parus inornatus griseus*. Gray Titmouse. Frey saw a small flock at Douglas Spring.

89. *Parus gambeli*. Mountain Chickadee. Observed at Sulphur Springs; Grand Lake; near McCoy; at Douglas Spring; and on Tarryall Creek. As in the case of the nuthatches, they should have been seen elsewhere.

90. *Regulus calendula*. Ruby-crowned Kinglet. Seen only at Sulphur Springs.

91. *Myadestes townsendii*. Townsend Solitaire. Noted a number of times at Sulphur Springs and Grand Lake; near Kremmling and near Sheephorn Pass. After that we were out of their summer range, until we struck the Continental Divide, and did not happen to run across any then.

92. *Merula migratoria propinqua*. Western Robin. Robins were at Sulphur



SITE OF HOUSE WREN'S NEST—IN TIN CAN NAILED TO TREE AT LEFT

Springs on my arrival there; during the stormy weather in April they gathered at times in large flocks, 75 or more. They were noted everywhere along our route. At Steamboat Springs, June 1-10, we found nests with eggs and young. July 12 we found at Mud Springs a nest with four eggs.

93. *Sialia arctica*. Mountain Bluebird. The Bluebirds were at Sulphur Springs when I arrived. About the middle of April their actions indicated that if they were not already nesting they were seriously considering doing so. They were seen everywhere we went on the trip.

Colorado Springs, Colorado.

THE TAWNY CREEPER IN WESTERN WASHINGTON

By J. H. BOWLES

ALTHO resident thruout the year, the Tawny Creeper (*Certhia familiaris occidentalis*) is locally distributed and must be considered as rather rare even in the most favored sections. Its retiring, unobtrusive habits and weak, kinglet-like squeaking note tend to make it all the more elusive, even to the most experienced bird student.

After the nesting season is over it may be found only in the most heavily-wooded districts remote from civilization. It is solitary in its habits and even during the winter months, when the nuthatches, kinglets and others of its near relations are traveling together in bands, the creepers are most often found alone, or else working over the trees with two or three more of their own kind.

In hunting over a tree in the pursuit of the spiders, tiny beetles and other insects which make up its food supply, the creeper invariably starts at the base, only a foot or two from the ground. It then works upward around the tree in spirals to a height of from twenty to forty feet, seldom higher, and then swoops suddenly down to the base of another tree, acting much as if it had accidentally lost its hold and fallen.

A curious feature in its habits is that swampy land and the vicinity of water are the favorite haunts during the rainy winter months,

while during our dry summers it retires to the dryest woods it can find. This latter fact was unknown to me until the spring of 1905, and for years I had looked unsuccessfully for the nest in the low-lying, swampy districts such as the Brown Creeper (*C. familiaris*) frequents in eastern Massachusetts.

The mystery was solved, however, on May 17, 1905, by Mr. W. Leon Dawson, of Seattle, Wash., while we were putting in the day on the outskirts of Tacoma. He marked down a creeper gathering food, and we soon traced it to the nest which contained six well-grown young. The locality was very dry, on the



NESTING SITE OF THE TAWNY CREEPER

edge of a clearing in the dense fir woods, and fully exposed to the sun. Since then I have found a number of nests in similar locations, the vast majority, unfortunately, being either old ones or decoys. These last are quite plentiful, tho I am by no means certain that they are not nests which for some reason had proved unsatisfactory before completion and on that account were deserted.

Nest-building commences about the third week in April, either an oak or a fir being selected for the purpose. The only exception I have ever known to this was one bird that I had watched until it disappeared under a strip of bark fully sixty feet up in a giant cedar. Since the bird did not come out while I was watching, it is fair to presume that the nest was there.



NEST AND EGGS OF THE TAWNY CREEPER EXPOSED

The nest is placed, as a rule, from two to twenty feet above the ground, tho the majority that I have seen were under ten feet. As is customary with the other creepers it is built under a strip of bark that has scaled away from the trunk of the tree. The bird student cannot be too careful in examining every tree, as it is surprising how small a piece of bark is sufficient to hold the nest. I passed by one nest that was in plain sight and must have had eggs at the time, simply because the fir that held it was only three inches in diameter and seemed too small to be worthy of a close examination. Usually the twigs in the nest project beyond the sides of the protecting strip of bark and thus betray its whereabouts, but in some instances the strip of bark is so broad as to completely hide all signs of nesting material.

Another matter that must be guarded against I learned by a most annoying experience. Scarce as the birds are, if the surrounding conditions are suitable at least two pairs may be found nesting in the same vicinity. On May 5th of the present year I took a nest containing five slightly incubated eggs, and, as the birds are so rare, it did not occur to me to search for any more just there. Visiting the place again two weeks later in search of a possible second nesting, I found another nest containing five young only a little more than a hundred feet from the first one. This seemed a little remarkable from the fact that hundreds of bark scales may be found in apparently suitable locations without any indications of creepers being in the neighborhood.

In its composition the nest has a groundwork of twigs, the size of which de-

pend entirely on the dimensions of the space between the bark and the main trunk of the tree. Sometimes only a scant handful is sufficient, while in one nest the twigs would have filled a quart measure to overflowing. Slender dead fir twigs, from four to eight inches long, are almost invariably used, and this must frequently be a most arduous piece of business. Twigs have to be thrust into the crevice until the first dozen or so lodge firmly, then the rest is easy. In every nest quite a little mound of twigs is found on the ground below, showing how persevering the little architects must have been in the face of repeated failure. Probably they consider such twigs as unsuitable; at any rate it never seems to occur to them to pick up a twig when once it has fallen. Scattered amongst this net-work of twigs is always a little green moss and a considerable amount of down taken from ferns, willows and cotton-woods. What purpose these serve, beyond ornamentation, must be known only to the birds themselves. On top, and firmly embedded, is the egg cup of the nest, which is composed of a thick felting of fine strips from the inner bark of the cedar, with occasionally a few feathers.

The eggs are laid during the first week of May, and are usually five in number, rarely six. In color they are a dull white, plentifully sprinkled with dots of red-brown, most heavily about the larger end. The two sets that I have been fortunate enough to take are a well rounded ovate in shape. In another nest, that was torn down while I was waiting for the bird to complete her set, the broken eggs showed a decided approach to long ovate. My two sets show practically no variation in either size or shape, averaging .47x.58 inches.

In spite of the early nesting date it is very much open to doubt if more than one brood is reared in a season. Most of my spare time during the past summer was devoted to studying these birds, yet no evidences of a second nesting could be found anywhere.

A curious fatality seems connected with the young of these birds. In the two nests containing young that I have watched, all the occupants died shortly before they were ready to fly. I could not discover any positive cause for this, but am inclined to attribute it to ants with which the trees were infested. In fact it has always seemed strange to me that more nestlings are not destroyed in this manner.

The birds are very shy in the vicinity of their home, excepting after the eggs are hatched. Even when I knew just where it was and posted myself at a considerable distance, the most patient watching has never enabled me to see a bird return to her treasures.

Tacoma, Washington.

THE SOUTHERN CALIFORNIA CHICKADEE

By JOSEPH GRINNELL

Parus gambeli baileyæ

SUBSPECIFIC CHARACTERS.—Similar to *Parus gambeli gambeli*, but coloration dorsally and laterally more plumbeous, less brownish, and bill larger.

TYPE.—♂ ad.; No. 5516 Coll. J. G.; Mount Wilson, 5500 feet altitude, Sierra San Gabriel, Los Angeles County, California; November 27, 1903; collected by J. Grinnell.

COLORATION OF TYPE.—Top of head and hind neck, including loreal region, continuously black, save for a pure white superciliary stripe on each side; chin,

throat and fore chest also black; sides of head and neck, patch on chest bordering black area behind, and median abdominal region, dull white; whole back (including scapulars and rump) and sides, flanks, and crissum, pure smoke gray, without any of the buffy cast characterizing *Parus gambeli gambeli*; wings and tail mouse gray, edged with lighter.

MEASUREMENTS OF TYPE.—Length (of skin), 132 mm.; wing, 72.5; tail, 66; tarsus, 19; depth of bill, 4; culmen, 10.5.

DISTRIBUTION.—The mountains of southern California (breeding in the Transition and Boreal zones), and adjacent valleys in winter.

REMARKS.—The characterization of this new subspecies is based upon an examination of 95 skins of *Parus gambeli*. Thirty-six of these were loaned me by the United States National Museum, thru Dr. C. W. Richmond, Acting Curator, Division of Birds. The remaining 59 are from my own collection, and include 46 from southern California all of which are fairly referable to *Parus gambeli baileyæ*. Forty-seven skins from northern California, Oregon, Washington, and Rocky Mountain region from New Mexico and Arizona to Montana, are all *Parus gambeli gambeli*. One skin from Fort Tejon and others from Mount Whitney and further north in the Sierra Nevada are plainly *P. g. gambeli*. Two skins from Mount Pinos, Ventura County, are indeterminate, one being juvenal, and the other a worn adult.

The race *baileyæ* is larger and grayer than the northern and Rocky Mountain race *gambeli*. These characters are altogether constant in fully adult birds. An occasional *baileyæ* in first annual plumage has the sides not as clearly gray, being faintly overcast with brownish, and so is like *gambeli*. But the bulkier bill then serves as a criterion for recognition. I believe I would have no trouble in assorting even immatures of the two races.

I take pleasure in naming this well-marked new chickadee for Mrs. Vernon Bailey (Florence Merriam Bailey), whose accurate and pleasantly-written accounts of many of our birds form an important component of the ornithology of the west.

Pasadena, California

NOTES FROM THE DIARY OF A NATURALIST IN NORTHERN CALIFORNIA^a

By JOHN F. FERRY

THE following notes were made while carrying on field-work in northern California for the U. S. Biological Survey, under the direction of C. Hart Merriam, during the summer and autumn of 1905. The writer was associated from July 21 to August 9 with Mr. A. Sterling Bunnell, then a medical student in the University of California, and from September 18 to November 3 with James H. Gaut, at that time a regular employee of the Survey and a field-worker of much experience.

^a Author's Note:

This article is written from notes as they were jotted down in a field diary, and at the time served merely as memoranda from which extensive reports were sent in from each locality visited. No effort was made to identify material in the field, as such material, including mammals, birds and plants, was sent in with field data only. Hence the article must lack in completeness and thoroughness, but still a conscientious effort has been made to keep out of error and to make positive assertions only when they are justified. Credit is given to others whenever possible.

Altitudes were taken by two aneroid barometers. I am indebted to the Biological Survey for a number of identifications as noted in the text.

On July 21 Bunnell and I left the train at Willets, Mendocino County, shortly after noon, and hastily got together supplies for a two week's camp. We resumed our journey after changing cars, and were soon in the depths of a magnificent redwood forest. Our train was pulled slowly up the steep and winding grades by an odd-looking, but powerful side-cog locomotive. Thus we had an excellent opportunity of studying the country from the windows of our observation car. Towering redwoods kept us in almost constant shade, and beneath these giants grew a fine forest of Douglas spruce, bull pine, madrone, tan-bark oak, white and black oak. The hillsides were carpeted with a luxuriant undergrowth, and frequent mountain streams added the final touch to a forest scene of rare beauty. This part of the journey, all too short, was ended at Sherwood, where we changed to a huge six-horse stage and continued our journey as far as Laytonville, which place we reached about seven o'clock in the evening. This part of the journey, too, had scenery varied and picturesque. Rolling hills bear an open forest of bull pine, alternating with thick undergrowth and with patches of thin yellow grass. Many pleasing contrasts are thus formed; but the chief charm of this stage ride is the thick cluster of noble Douglas spruce, into whose deep shade the road frequently plunges, or which, standing apart in the distance, are rendered conspicuous by their deep green color and lofty, spire-like forms.

Next day in the cool of the morning we were on our way again, our objective point being Covelo in Round Valley. This trip, thru the Transition Zone forest, was of continual interest. Blue-fronted Jays screamed, and California Woodpeckers drummed and called as our stage rumbled by. The majestic Douglas spruce towered above us at frequent intervals, and some striking specimens of the madrone are recalled vividly even at this writing. They were among the tallest of the forest trees, their huge spreading branches, each one a tree in itself, started from near the base, and gave the effect of a gigantic shrub. The rich, deep red color of the bark is in striking contrast to all other hues of that forest, and is a unique element of beauty. The day wore on with ever changing scenes; now we were in the deep cool shades of lofty spruce trees; now thru vistas in the forest we got views of fair valleys, or mountains, blue in the distance.

About noon we crossed the main fork of Eel River, a rapid stream of pale greenish water. From here began our ascent of the range of hills which completely girdles Round Valley. From its summit several fine views of the valley can be had. It is a golden plain of grain fields and pastures stretching away to the hill barriers on every side. Dotted about here and there are ranch houses with their green orchards and shade trees relieving the general tone of yellow. Numerous herds of grazing livestock complete a pastoral scene which is all the more pleasing because of its striking contrast with the wildness and solitude of surrounding mountain and forest. Thru this valley (Upper Sonoran Zone) on July 23, Bunnell and I made our way, and about ten in the morning we began the ascent of Asebeen Ridge at the northeastern extremity of the valley. A long, all-day climb brought us well into the Yalho Bally country, and we made a comfortable camp for the night in a miniature mountain meadow, with a small stream running thru it. For most of the next day we passed thru open forests of bull pine thru which were scattered quite frequently, live oaks and madrones, the last named trees being particularly handsome. As we got higher up the bull pines increased in size, and sugar pines became quite common.

The next day we encountered some severe climbing, and our two sturdy mules were taxed to their utmost at times. The country was typically mountainous, the steep rocky slopes and deep canyons becoming more pronounced in character till we

descended into a deep, gloomy gorge and after crossing it, began the long, steep climb up to the summit of South Yallo Bally itself. All the latter part of the afternoon we struggled up towards its enormous rounded crest, and we reached it just as the last rays of the setting sun made it light when all the lower heights were in semi-darkness.

The scene from the summit was one of memorable beauty. All about us was a wild confusion of rugged peaks and densely timbered ridges, seen dimly in the fading light. On one side was the steep slope up which we had just come, receding downwards till lost in darkness. On the other we could barely see several pockets in the mountain's side, each a miniature valley with its little green meadow and its tiny trickling brook. In one of these we made our camp almost within a stone's throw of a huge drift of snow. This camp can be easily located, for just above it on the mountain's summit is a surveyor's monument marking the corners of three counties, Mendocino, Trinity and Tehama.

A word of explanation in regard to this region might not be out of place. South and north Yallo Bally Mountains (pronounced Vollo Bolly) are the highest peaks of the Coast Range, and as such should throw some light on the problems of geographical distribution. Bunnell and myself, I believe, had the privilege of being the first naturalists to visit this interesting region and as a result of our humble efforts several new races of mammals were brought to light. The region is certainly worthy of more extended study. The altitude of South Yallo Bally is about 8000 feet. Our camp here was from July 24 to August 2. Boreal conditions of flora ruled about the summit, where spruces and probably firs were the prevailing trees. A descent of about 500 feet would bring one into the beginning of the Transition Zone, magnificent forests of bull pine (*Pinus ponderosa*) being met shortly below this point where the gentler slopes began. The small valley in which our camp was, quickly narrowed and, changing into a small rocky canyon, descended rapidly for about 300 to 400 feet where it broadened out and became thickly grown with willows and shrubbery thru which a clear brook ran. This canyon offered a great variety of conditions, and trapping and bird-collecting were excellent. The mammals we got here included white-footed mice, voles, shrews, gophers, copper-head squirrels, chipmunks, woodrats, a coon, a badger, and a weasel. Signs of coyote, wild-cat and porcupine were also met and deer were quite plentiful. The Yallo Ballies are a famous spot for bears, but we learned of their presence only thru hunters and sheep-herders.

The most abundant birds at this place were Juncos and Audubon Warblers. In merry troops they visited our camp, dashing within a few feet of where we were preparing specimens, or curiously watching us from perches but a few feet distant. Clarke Crows frequently flew with steady, even flight over our heads to some distant ridge, and Western Robins, roving thru the evergreens in small bands brought memories of gardens and homes strangely in contrast to the present reality of solitude and wildness. But the bird that most truly voiced the spirit of this lonely mountain top was the Olive-sided Flycatcher. Its clear, loud whistle had in it the quality of joyous freedom, and sentinel-like upon a lofty evergreen spire it would ring out its challenges all day long. Its vigil began with the first light of day. A few, faint, timid twitterings steal out of the gray dawn, but gaining courage as the day brightens, the bird's notes grow louder and louder until the cold, still air is filled with the wild free ecstasy.

On August first we decided to change camp as the possibilities of small mammal trapping seemed about exhausted. From two goat-herders who had their camp near by we learned of a deserted ranch some six miles distant where "varmints"

were quite common, and for that spot we made preparations to start. A large panther skin nailed to a pine tree, recorded the capture of its owner two nights before and gave us an authentic record of this animal's presence in this locality. It was shot within the very camp and when it was stealthily watching the four-year-old boy of one of the herders. At this point it might be wise to add that the Yallo Bally Mountains are inhabited almost solely in the summer time by sheep and goat herders with their flocks. The effects of these close-cropping animals are all too noticeable. First come the sheep, the closely-massed herds moving up the mountain sides, and destroying every blade and leaf as a blight. Following in their wake, the goats with their browsing habit consume the foliage of the shrubbery as high as they can reach. Thus the region of their operations is devastated almost as thoroughly as fire could accomplish the same result. The effect upon ground and shrubbery frequenting species of birds cannot help but be harmful to some degree. We could not otherwise explain the absence of Dusky Grouse and Mountain Quail from regions thus effected, while they were commonly met with in others.

Our start on the second of August was delayed by the escape of one of the mules the night before, the animal only being captured after a five-mile tramp to a neighboring herd of horses. With a half-day thus lost, we resumed our preparations, and were just on the point of putting the pack-saddle on the other mule, when in some unaccountable spirit of perversity it suddenly lurched backwards breaking its tether rope, and with a snort and the clattering of hoofs was off down the mountain in just the opposite direction from which the other had taken. By an act of stupidity as sudden and as unaccountable as its previous one had been cunning, one of us was able to walk up to its side and pick up its lead rope. After a long trudge up the mountain we gained camp, and quickly completing our packing got under way at five o'clock, approximately just a day behind. Traveling till dark we luckily came upon a small brook and there camped for the night. Next morning an hour's traveling along the timbered ridge, upon whose upper extremity we had camped, brought us to a turn in the trail that led downward, and soon after we came out into a fenced-in clearing and in sight of the deserted ranch houses for which we were seeking. This spot, Barney's ranch, could not help but appeal to the lover of the romantic and picturesque. Nature in a relenting mood had permitted a broad level meadow to rest in the steep mountain side where rugged cliffs and heavy forests prevailed elsewhere. An old rail fence was at the very edge of a steep precipice at whose base dashed the turbulent waters of Eel River: a frowning cliff was in the rear; and on either side the forests reached to the stockade-like fence, now crumbling with age. The houses, tho long deserted, were still well-preserved and showed the thrift and intelligence of their former owners. They stood in the shade of wide branching trees and were guarded by a number of lofty spruces. Here on the wide veranda the dwellers could hear the pleasant purl of a close-by brook, or the deeper roar of the river below. Rows of fruit trees and a patch of berry bushes stood in the rear of the house, and close to the mountain side was the spacious barn. In a word every sign indicated a prosperous and well-ordered establishment, and one could scarce understand why a place of such natural beauty, and so highly improved by the art of man should have ever been deserted. But two graves on a nearby knoll probably told the story. Here lay the parents, and the children longing for greater activity and a larger world had become city dwellers, and their picturesque home was now a forgotten thing.

In the tranquil and impressive beauty of this spot, Bunnell and I got a pleasure entirely separate from that of our natural history work. Here small mammals and birds were quite abundant, but not a "varmint" did we see. We had a de-

lightful plunge in Eel River and caught a string of trout in its waters before ending our stay at Barney's. Early on the morning of August 8 we started on the long trail for Covelo. After an all-day tramp over the roughest kind of country we reached Covelo about eight o'clock at night, well fatigued. We spread our sleeping bags in a pasture that night, for the hotel of the town had burned in our absence and with it some of our belongings.

Bunnell and I returned over the way we had come as far as Ukiah. Here I left him, getting out a line of traps that night and putting up a few mammals before taking the stage for Lierly's ranch at the base of Mt. Sanhedrin, the next day. A twenty-four hour's delay was necessary at John Day's in Potter Valley, where I did some more collecting, and late on the night of August 12, our stage arrived at that extremely picturesque spot, Lierly's ranch. Here for three days I had fine small mammal collecting, but being without a gun had to neglect birds.

After a short stay in San Francisco, I left for Marshall's, Marin County, on



SHOVEL CREEK, NEAR BESWICK, CALIFORNIA

Tomales Bay, and just across from the famous headland of Point Reyes. Dr. Merriam was on the train to this point and made the journey very instructive, pointing out the characteristic shrubs and trees of the region thru which we passed. Marshall's is in a country of rolling hills, golden yellow in color from the thin coarse grass which is everywhere present. The country is practically treeless except in the well-watered canyons where occur willows and elder bushes and other similar growths. On slopes protected from the cold, steady breezes off the ocean, the California laurel grows in dense patches. This locality is cool, well-watered and birds and small mammals are fairly common.

On August 21, I joined Dr. Merriam at Camp Meeker, Sonoma County, in the midst of a beautiful forest of redwoods. Here along the brook and in the shady woods small animals were common; but a snail proved a great pest by eating the bait from small traps. Frequently nearly every trap set in damp places had its bait removed and remained unsprung. Birds here were surprisingly scarce, perhaps due to the thickly settled character of the resort.

On August 27 I left Camp Meeker and on September 4 resumed field work at Beswick, in the very heart of the Siskiyou in northern California. The famous Hot Springs here have led to the establishment of a summer resort and this has naturally had an adverse effect upon animal life. Fair trapping, however, was had along Shovel Creek, and the fine orchards and gardens connected with the hotel served to attract numbers of birds. Beswick is in a small valley—the widening of the gorge of the Klamath river, which here runs tumultuously by. The altitude

near the river is reported as 2700 feet; but high timbered ridges rise on every side, some of them with an altitude of 6000 feet and of course between these altitudes there are varying conditions of animal and plant life.

After a few days at Beswick camp was made on a high ridge at whose base was Shovel Creek, a beautiful trout stream flowing towards the Klamath River in a general northwesterly direction. This camp was well within the Canadian Zone, and in a remote spot where wild creatures were abundant. Coyotes howled every night and their tracks led to and from the spring in all directions. Wild cats were also about and one night about a quarter of a mile from camp I was astonished to find a bear track.

The pleasantest memory of this camp was my meeting with the Townsend Solitaire. Late in the afternoon as I worked putting up specimens, and was beginning to feel a sense of loneliness, one of these gentle creatures would perch on the topmost branch of a dead juniper and there till nightfall pour forth its exquisitely beautiful strains. Unconsciously there grew up an almost human attachment for the soft-hued minstrel and the listener no longer felt himself alone.

A short distance above camp there lay an extensive table-land covered with a fine forest of yellow pine, incense cedar and spruces or firs. Here in the early morning there was a fascinating experience to be had as one visited his traps. The tops only of the tall trees were reached by the sun's rays, and from thence floating softly down would come the faint notes of kinglets, chickadees and brown creepers, while the birds themselves looked like tiny insects. As the sun rose and its rays gradually penetrated the depths of the forest, the birds would as gradually descend until the lower branches, hitherto deserted, would seem alive with them.

On the 18th of September I left my solitary camp and returned to the camp where I found James H. Gaut, who from now on took general charge of the work. Together we started on the 20th for the Spanish Springs Camp, situated on a range of 6000 feet altitude and about six miles southwest of Beswick. Here we got typical Canadian Zone species, our entrance into the fir belt being curiously enough almost immediately heralded by a flock of six Canada Jays. Shortly after we saw numerous Red-breasted Nuthatches and one White-headed Woodpecker. A majestic sugar pine stood sentinel over our camp and others towered in the distance. The place was curiously lacking in small mammals and we soon left. Our journey homeward on the 23rd afforded an interesting study in the changes encountered between the Canadian and Transition Zones.

On September 25 Gaut and I started for Picard, a small hamlet in Butte Valley, a half-day's stage journey from Beswick. We were provided with a spring wagon and two horses, which was our means of travel for the next week, and proved excellent for our purpose for we could collect as we went along.

The road from Beswick works gradually up the gorge of the Klamath River until Topsey, a small stage station is reached. It is situated upon an extensive tableland bearing a fine forest of yellow pine, with a generous sprinkling of incense cedar. The altitude of this tableland is 4100 feet and its soil is a curious dark red.

We camped at the edge of a clearing near the stage station, and in the morning resumed our journey thru the yellow pine forest eastward until we reached Butte Valley. An obliging rancher allowed us to occupy an abandoned house situated at the very border of the timber and here we found some good trapping. Butte Valley is an extensive sage-brush plain into which project ridges and spurs from the surrounding high lands. These ridges are sometimes barren, sometimes more or less covered with timber which is mostly juniper; but oaks and yellow pine

are also met in these places. Picard is about two miles from our camp, and from Picard to Brownell on the shore of Lower Klamath Lake is about the same distance. We jogged along at an easy pace which gave us every opportunity to study the country. At this time the sage brush was alive with Lincoln Finches (possibly *Melospiza l. striata*) and every little while small, light-colored chipmunks would scurry away to a safe retreat.

A few miles from Picard a ridge of considerable size extends into Butte Valley and north of it begins the low, flat plain which contains Klamath Lake. Here a new character of country prevails. The sage brush diminishes in area and gives place to fertile grass-covered prairies, which are dotted by innumerable cattle. It is a scene of tranquil pastoral beauty and of a kind very unlike what one expects to see in California. It was no uncommon sight to see coyotes trotting leisurely about the outskirts of the grazing cattle, or stealthily following a miniature water-course in quest of meadow-mice. We captured one of these wary prowlers in a rather interesting manner. Some distance ahead on the left-hand side of the road, which at this place follows close by a ridge, we saw a coyote quietly nosing in the long grass. Gaut immediately, and without slacking the team, planned a means of capture. He handed the reins to me and slipping two buck-shot cartridges into a twenty gauge gun, quickly jumped out of the wagon while it was moving and then lay flat by the roadside. The coyote, on seeing the team so near was totally taken by surprise, and fearing to cross the road in front of the team, sought to gain the ridge by circling around back of the wagon. Not yet greatly alarmed, it started on an easy trot in the very direction where Gaut lay quietly concealed in the grass. Seeing our plan was working so successfully, I looked backward with bated breath, as the unsuspecting animal neared its doom. Suddenly there was a bang and the coyote doubled up in a heap: a buckshot had severed its spinal column and it lay stone dead. It was a female and had recently eaten the paunch of a sheep.

Shortly beyond the scene of this event we encountered a succession of ponds and small water-courses nearly each one of which contained its flock of ducks—mostly teal and mallards, the approaching dusk made positive identification impossible. We paid rather dearly for our loitering by the way, for nightfall was upon us before we reached Brownell, and we spent two anxious hours wandering over the sage-brush plains in the chilly autumn wind before the twinkling light of the lone ranch kept by Mrs. Brownell came in sight.

Next morning a beautiful sight greeted us. To the south of us Mt. Shasta rose sublimely in a freshly fallen coat of snow; and far to the north in Oregon, Mt. Pitt could be seen, scarcely less beautiful. In the clear, frosty air we could see ourselves compassed about by rugged ridges and volcanic hills, while to the northeast lay Klamath Lake shining like a mirror and closed in by a wilderness of green rushes. Here we found trapping excellent, but a small variety of bird-life as the country was almost absolutely treeless. The occurrence of surpassing interest, however, was the countless numbers of wild geese present. Their hosts passing from and to the lake at night and morning positively produced a din.

The region from Picard to Klamath Lake is Upper Sonoran indicated by the large areas of sage brush and junipers. Much of it is desert-like, but about Klamath Lake the meadows are very wet. We left Brownell on October 2, and returned to Beswick that night. On the evening of the 4th we took the train at Ager for Grants Pass, Oregon, which we reached about 7:30 that night. The journey was exceedingly interesting. The railroad winds its way thru the picturesque Siskiyou Mountains in a most astonishing manner, some marvelous examples of engineering being revealed. Next morning (Oct. 5) we left Grants Pass

for a 24-hour stage ride to Crescent City. For most of the morning we traversed a plain, thinly timbered with yellow pine and oak, and interspersed with *Ceanothus* and manzanita. Jack-rabbits were common and a venturesome coyote narrowly escaped a shot from Gaut's rifle.

An exciting stage ride in the dark, where the stage lamps gave fleeting views of deep gorges and sudden turns, all passed at a quick trot, brought us about 3 A. M. to Adams. There we changed stages, and after vainly trying to get some sleep, we gave up the attempt and watched the daylight slowly creep into the heavy redwood forest, which we had but recently entered. The weird, impressionistic effects in this dim light were truly fascinating and baffle description. The huge trunks of the redwoods, some of them as wide as the length of the stage, grew out of fern beds as high as a man. We followed the stage on foot, until the road emerged upon the plain where Crescent City was situated, in order to better enjoy the fascinating experience. After a hasty breakfast we took another stage for Smith River, about 12 miles to the northeast, which place we reached at noon.

The trees and shrubbery in the Pacific Coast humid belt on which we worked from now on grew with almost tropical luxuriance. Heavy moss hung to the trees, and fallen logs were completely covered with it. The thickets were almost impenetrable. The air was mild and spring-like, and nothing could surpass in pleasure outdoor life in this region. We spent until October 18 in the vicinity of Crescent City and Smith River, and then took a charming stage ride thru dense redwood forests to Requa, a cluster of houses at the mouth of the Klamath River. The flora was much the same in this region traversed as at Crescent City and Orick. The highest point on the stage-road between Requa and Crescent City is 1280 feet. On October 19 we resumed our journey to Orick at daylight, and the same general character of country was met. The stage follows along high precipitous cliffs, at whose base is the ocean. A strange spectacle seen in these dense redwood forests is a huckleberry bush, grown in the top of a broken off tree, sometimes at a height of 100 feet. We reached Orick about 12 o'clock and that afternoon set out a long line of traps. Here was a clearing in the dense redwoods making a favorable site for our work. The highest point between Requa and Orick is 940 feet. On October 21 at noon we began another beautiful drive thru the redwoods, and by nightfall we were at Trinidad. This region was not suitable to our work so next



BURNT REDWOODS NEAR SMITH RIVER, CALIFORNIA

morning we resumed our journey and making a short stop at Eureka, a thriving business city on Humboldt Bay (Humboldt County) we began field work again at Alton Junction some 20 odd miles south of Eureka, on October 23. We trapped here till the 26th. This town is on a narrow plain thru which flows a narrow stream of clear water. Imposing cliffs and heavily timbered ridges arise in the vicinity. Tho well settled up here the wild nature of the country is still present. Deer tracks were often seen but one-half mile from town. Gaut caught a fine gray fox near these tracks.

Unexpectedly hearing of a promising trapping locality upon the high Rainbow ridges to the south, Gaut and I made a hurried departure for this spot on October 26. We passed thru a prosperous farming country, with scattered patches of coniferous and deciduous timber similar to that previously described for this humid area until we reached the prettily situated and thrifty town of Rio Dell. From there we entered the redwoods and climbed steadily upward till we reached a series of bald ridges with their slopes heavily timbered with firs, spruces and fine groves of tan-bark oak. About the middle of the afternoon we reached Crawford's Ranch, and getting directions for our further journey, started down into the deep, heavily-timbered canyon of Bear River. Here we had to block the wheels of our light, one-horse trap every few rods, so steep was the declivity. The ascent up the opposite side was scarcely less difficult and about sundown we reached McDonough's Ranch. Here our anticipations of a warm supper and a good bed were rudely shattered, as the place was temporarily deserted, and a few bites of oat-meal, raisins (trap bait) and jerked venison were all we had before going to bed in the hay loft. Next morning we gained Henley's Ranch, our destination, after traversing huge rounded ridges, grass-covered and treeless. The adjoining canyons, however, were of just the opposite character, steep and heavily timbered. Here we got wild cats, gray foxes, and a good series of spotted skunks (*Spilogale*). Our stay in this charming, isolated spot lasted till November 1, and returning to Alton Junction, the writer's field work terminated. Gaut continued the survey work considerably further down the coast.

Aechmophorus occidentalis. Western Grebe. Crescent City in the ocean; at Requa, mouth of the Klamath River.

Podilymbus podiceps. Pied-billed Grebe. Crescent City, Requa, Orick.

Larus delawarensis. Ring-billed Gull. The gulls observed by the writer were mostly unidentified and but one specimen of the Ring-billed Gull was taken. Gulls and terns were common about Klamath Lake, Crescent City and Eureka. A common tern about Klamath Lake was undoubtedly *Sterna forsteri*, and on the flat shores of this lake were immense droves of large gulls in company with large flocks of Canada Geese. A unique sight at Crescent City was large numbers of gulls feeding upon the carcass of a dead whale.

Phalacrocorax dilophus albociliatus. Farallone Cormorant. Common at Beswick and at Marshalls. Cormorants were common at Requa and presumably this species was largely represented among them.

Phalacrocorax pelagicus resplendens. Baird Cormorant. One taken at Crescent City. (Identification by Biological Survey).

Pelecanus californicus. California Brown Pelican. Common at Marshalls and Crescent City.

Anas boschas. Mallard. These birds are reported as breeding sparingly at Beswick. They were common in the sloughs and ponds about Lower Klamath Lake.

Mareca americana. American Widgeon. Very common along the coast from Crescent City southward during October. Widgeons usually formed the largest

part of every duck hunter's bag. They often spend the day in the open ocean and return to the marshes to feed at night.

Spatula clypeata. Shoveler. These ducks appear to fall an easy prey to the duck hunters. They are nearly always seen in a bag of any size. Observed at Crescent City, Orick and Trinidad.

Dafla acuta. Pintail. Seen at Klamath Lake during early October. Many Teal were observed in the region of Klamath Lake, but by curious chance they were seen either at a distance or were flushed from ponds and wet meadows at dusk when their markings could not be seen. Flocks of Blue-bills were seen at Requa and Orick but as no specimens were taken, their identity can not be stated. Scoters were frequently seen resting lazily just outside the surf at Crescent City or flying heavily just above the water. Pure white geese were seen on an inland lagoon between Orick and Trinidad.

Branta canadensis. Canada Goose. This bird was abundant about Lower Klamath Lake during our stay there. Gaut shot a fine male with the rifle. An immature bird of one of the smaller subspecies was secured at Lower Klamath Lake in a peculiar manner. A flock was seen rapidly flying in a wedged-shaped flock toward where we stood near a barn. Suddenly seeing us the flock quickly veered upwards and to one side and for a moment it was in complete confusion. Suddenly from the midst of the beating wings a helpless bird fluttered down to the ground. The bird was easily captured alive, but unfortunately was not preserved. These smaller geese (*hutchinsii* or *minimus*) were about Lower Klamath Lake in great abundance, and their return from their feeding grounds in the direction of Butte Valley lying south of the Lake, was an impressive spectacle. The lake and its adjoining plain is girdled by low hills and ridges and into this amphitheater countless numbers of the geese, and their larger cousins, the Canada Geese, would come at night to roost. The air resounded with the din of harsh, squeaking, cackling notes, which could be likened to nothing so much as to the creak of an ungreased wagon-wheel. A reminder of this experience was had at Crescent City where the geese during foggy weather and at dusk would pass from the ocean to some unknown feeding ground inland.

Branta nigricans. Black Brant. This bird is probably of more or less common occurrence in suitable localities in the Siskiyou mountains. In 1890 while staying at Beswick, I can remember a Black Brant being shot in the tall grass bordering Klamath River, and just back of the Klamath Hot Springs Hotel. On September 26, 1905, a flock of four of these birds was flushed from a swampy clearing near Topsey.

Botaurus lentiginosus. American Bittern. One or two seen at Lower Klamath Lake.

Ardea herodias. Great Blue Heron. Common at Marshalls, Beswick and Klamath Lake.

Grus mexicana. Sandhill Crane. This bird was exceedingly plentiful about Lower Klamath Lake and Meiss Lake at the southern end of Butte Valley.

Rallus virginianus. Virginia Rail. One seen at Crescent City.

Porzana carolina. Sora Rail. Seen at Lower Klamath Lake.

Fulica americana. American Coot. This bird was first met with near Beswick under very peculiar circumstances. While setting traps on a high brushy ridge about five miles from the Klamath River, a large black bird awkwardly fluttered out of a clump of mountain mahogany. As it flew clumsily down into the canyon of Shovel Creek, it was plainly identified as an American Coot. Possibly a weary migrant had fallen into this predicament thru sheer exhaustion. This species was

observed in more or less abundance at Klamath Lake, Crescent City, Requa, Orick, Trinidad and Alton Junction.

Gallinago delicata. Wilson Snipe. A number seen at Beswick and about Lower Klamath Lake. A species of Yellow-legs was seen at Klamath Lake, but at too great a distance for positive identification.

Oxyechus vociferus. Killdeer. Killdeers were seen nearly everywhere we went. They were extremely abundant at Lower Klamath Lake, where their incessant cries were almost distracting. A curious sight was that of numbers of these birds scattered about the lawns at Leland Stanford University, while the sprinklers were in operation. This recalled the robins on the lawns of the Eastern States.

Oreortyx pictus plumiferus. Mountain Partridge. These birds were first met about 500 feet below the summit of South Yalloy Bally Mountain on July 28, and were met thereafter almost daily during our stay there. At this time there were many broods about and the parent bird's harsh scolding note (somewhat recalling that of the Guinea-hen) was a characteristic feature of the thick chaparral. At Barney's Ranch this species was found in company with the California Partridge.

Lophortyx californicus californicus. California Partridge. Met with practically everywhere along the coast of northern California. (Specimen from Orick identified by Biological Survey).

Lophortyx californicus vallicola. Valley Partridge. South Yalloy Bally (identified by Biological Survey).

Dendragapus obscurus fuliginosus. Dusky Grouse. This bird was common in favorable localities on South Yalloy Bally in ridges of the Canadian Zone in the vicinity of Beswick. In both localities the birds were shy, and when flushed from the brush would make rapid wing beats till well out of gun-range, and then setting their pinions they would sail steadily upwards to the tops of the nearest clump of firs or spruces.

Columba fasciata. Band-tailed Pigeon. Several flocks met on South Yalloy Bally within the Transition Zone. The birds were wary and when flushed, the tremendous flapping of their wings was truly startling. Birds described by hunters who had seen them near Beswick were referred to this species.

Cathartes aura. Turkey Buzzard. A few of these birds met on South Yalloy Bally. Seen also at Beswick, Alton Junction, Henley's Ranch and Rio Dell.

Circus hudsonius. Marsh Hawk. Common at Marshalls and profusely abundant at Brownell. The charge that these birds were chicken stealers, made in the latter place, would seem to be based on good grounds. They were the only hawk we observed there, and they frequently were seen near farm yards, and whenever possible were shot. To this circumstantial evidence was added the testimony of trustworthy persons that they had caught the hawk in the act of stealing chickens.

Buteo borealis calurus. Western Red-tail. These birds were met wherever we went.

Archibuteo lagopus sancti-johannis. American Rough-legged Hawk. An adult bird in beautiful plumage and an immature bird were taken at Beswick. They were taken in the hotel orchard which was infested with ground squirrels.

Aquila chrysaetos. Golden Eagle. Jas. H. Gaut reports seeing this bird several times at Henley's Ranch.

Falco sparverius. Sparrow Hawk. South Yalloy Bally Mountain, Beswick, Picard, Crescent City, Requa, Orick, Alton Junction, Rio Dell.

Pandion haliaetus carolinensis. Fish Hawk. Klamath River, at Beswick, several,

Bubo virginianus icelus. Dusky Horned Owl. One shot at John Day's in Potter Valley, (identification by Biological Survey). The Horned Owls met on South Yalho Bally, Beswick, and Henley's Ranch, are provisionally referred to *B. v. pacificus* in the absence of specimens (see Oberholser Proc. U. S. Nat. Mus. Vol. 27, p. 177).

Asio accipitrinus. Short-eared Owl. Common at Lower Klamath Lake.

Speotyto cunicularia hypogaea. Burrowing Owl. Observed only at Alton Junction, where one was caught in a trap purely by accident.

Ceryle alcyon. Belted Kingfisher. Common at Beswick and Crescent City.

Dryobates pubescens gairdnerii. Gairdner Woodpecker. A Downy Woodpecker met at Crescent City was supposed to be this form, and one taken at Beswick is so identified by the Biological Survey.

Xenopicus albolaryatus. White-headed Woodpecker. Only met in Canadian Zone at Spanish Springs Camp (Beswick).

Sphyrapicus ruber. Red-breasted Sapsucker. This bird was common in all Transition and Canadian Zone forests we visited.

Ceophloeus pileatus abieticola. Northern Pileated Woodpecker. This bird was first met in life by the writer in a deep gully close to Barney's Ranch. While passing along a trail in this gloomy place, a most startling and weird sound was heard. It seemed like the angry snarl of some four-footed beast, and I was in a quandary till I saw a large black bird fly up from near the ground and perch on a dead tree close beside me. I was greatly elated when I secured it. Another specimen was later taken at John Day's, Potter Valley.

Melanerpes formicivorus bairdii. California Woodpecker. Common in the Transition Zone wherever we went.

Asyndesmus torquatus. Lewis Woodpecker. To the writer this was the most interesting woodpecker met in California. As we drove along the stage road from Ager (on the Southern Pacific Railroad) to Beswick, numerous flocks of large, slow-flying black birds were frequently seen. When the stage driver told me they were woodpeckers I was greatly surprised, but fully convinced when I had shot one of them. The birds were very abundant about Beswick and very destructive to orchards there. They were systematically shot, an average of 50 per day being made during the period of their greatest abundance, which was during the first half of August.

Colaptes cafer collaris. Red-shafted Flicker. This bird was common wherever we went. Along the humid coast belt we might have encountered *C. c. saturator*.

Phalaenoptilus nuttallii californicus. Dusky Poor-will. We saw a good deal of this interesting bird on the summit of South Yalho Bally. One night while we were sitting about the camp fire, a spectre-like form fluttered out of the darkness and dropped noiselessly to a big rock near by. In the day time a favorite place of concealment seems to be rocky and scantily-covered slopes. When flushed it will make but a short, erratic flight before alighting again. (Identification by Biological Survey).

Nuttallornis borealis. Olive-sided Flycatcher. Common on South Yalho Bally and observed at Spanish Springs Camp near Beswick.

Sayornis nigricans. Black Phoebe. Crescent City, Alton Junction.

Pica pica hudsonica. Black-billed Magpie. This bird was common in the brushy and scantily timbered hills in the vicinity of Lower Klamath Lake.

Cyanocitta stelleri frontalis. Blue-fronted Jay. This bird was common on

South Yallo Bally (identification of specimen by Biological Survey). This was probably the form met in the Siskiyou Mountains.

Cyanocitta stelleri carbonacea. Coast Jay. The jay so common in the humid coast belt everywhere we went was probably this form.

Aphelocoma californica. California Jay. Common in Transition Zone of northern California. At Beswick the ranges of this bird and that of *Cyanocitta s. frontalis* overlapped, both species being equally common.

Cractes obscurus griseus. Gray Jay. This species was common in the Canadian Zone about Spanish Springs Camp. (Identification of specimen by Biological Survey).

Cractes obscurus obscurus. Oregon Jay. Quite common in heavy red-wood timber at Orick.

Corvus corax sinuatus. American Raven. This bird was more or less common at Crescent City, Orick, Eureka, Alton Junction and Rio Dell.

Corvus brachyrhynchos hesperis. California Crow. Common at Klamath Hot Springs (Beswick).

Nucifraga columbiana. Clarke Nutcracker. These birds were tolerably common on the very summit of South Yallo Bally. They were the first bird to greet us as we gained the mountain top. Redwing Blackbirds were met at Marshalls. Picard, Lower and Klamath Lake and at Lierley's Ranch, but no specimens were taken, and the subspecies is in doubt.

Sturnella magna neglecta. Western Meadow-lark. This bird was common almost everywhere in suitable localities. A few pairs were met on a rocky Transition Zone mesa near Beswick. The pure, sweet, celestial quality of its song, which has charmed so many bird-lovers, was heard first at Marshalls. I had no idea the birds were about until a song of unusual sweetness reached me as I was setting traps in a hot breezeless gully. On climbing to the top of its bank I found myself on a field where was the author of the song.

Euphagus cyanocephalus. Brewer Blackbird. Common at Beswick and Butte Valley.

Carpodacus cassini. Cassin Purple Finch. This species was abundant on South Yallo Bally. Many young birds of the year were encountered there. (Identified by Biological Survey).

Astragalinus tristis salicamans. Willow Goldfinch. Smith River (Del Norte County).

Passer domesticus. English Sparrow. San Francisco, Crescent City.

Chondestes grammacus strigatus. Western Lark Sparrow. Crescent City. One seen.

Zonotrichia leucophrys gambeli. Intermediate Sparrow. Specimen taken at Alton Junction. (Identification by Biological Survey).

Zonotrichia coronata. Golden-crowned Sparrow. A flock of these birds was met on a high ridge (6000 feet) southeast of Beswick on September 18.

Spizella socialis arizonæ. Western Chipping Sparrow. Abundant on South Yallo Bally, Beswick, Orick, Trinidad. At the two former places many young of the year were seen and the adults were moulting.

Junco oregonus thurberi. Sierra Junco. These birds fairly swarmed on South Yallo Bally about its summit, the young of the year were abundant. (Identification by Biological Survey).

Junco oregonus shufeldti. Shufeldt Junco. Common on high ridges about Beswick. (Identification by Biological Survey).

Melospiza cinerea cleonensis. Mendocino Song Sparrow. Crescent City. (Identification by Biological Survey).

Melospiza cinerea samuelis. Samuels Song Sparrow. Common at Marshalls, Marin County. (Identification by Biological Survey).

Melospiza lincolni lincolni. Lincoln Sparrow. South Yallo Bally Mountain. (Identification by Biological Survey). Seen also at Crescent City, Requa, Orick and Alton Junction.

Passerella iliaca megarhyncha. Thick-billed Sparrow. Common on South Yallo Bally Mountain (Identification of specimens by Biological Survey). Seen also at Beswick and Alton Junction.

Pipilo crissalis crissalis. California Towhee. Beswick and Alton Junction. Common.

Oreospiza chlorura. Green-tailed Towhee. Not uncommon on South Yallo Bally.

Hirundo erythrogaster. Barn Swallow. Common at Lower Klamath Lake.

Tachycineta thalassina lepida. Northern Violet-green Swallow. In the evenings we would see these birds dashing in small flocks up the Eel River near Barney's Ranch.

Ampelis cedrorum. Cedar Waxwing. Two of these birds shot in orchard at Beswick.

Lanius ludovicianus excubitorides. White-rumped Shrike. Abundant in sagebrush near Klamath Lake.

Helminthophila rubricapilla gutturalis. Calaveras Warbler. Common on South Yallo Bally.

Dendroica auduboni. Audubon Warbler. This species was profusely abundant on South Yallo Bally. In rollicking flocks they visited our camp, perching inquisitively near to us as we worked on our specimens. They consorted with juncos and the two together seemingly outnumbered all other birds.

Dendroica nigrescens. Black-throated Gray Warbler. One taken at Beswick.

Geothlypis trichas arizela. Pacific Yellow-throat. Common in fruit orchard at Beswick.

Wilsonia pusilla pileolata. Pileolated Warbler. Fairly common on South Yallo Bally in willow thickets.

Anthus pensilvanicus. American Pipit. Met at Klamath Hot Springs (Beswick) Orick and Trinidad.

Cinclus mexicanus. Water Ouzel. Common along Eel River near South Yallo Bally. Beswick (Shovel Creek) and at Lierley's Ranch.

Salpinctes obsoletus. Rock Wren. This cheery little bird was frequently met on the rocky cliffs northeast of Shovel Creek near Beswick.

Nannus hiemalis pacificus. Western Winter Wren. Common at Camp Meeker, South Yallo Bally, Crescent City, Requa, Orick, Trinidad and Eureka.

Certhia familiaris occidentalis. Sierra Creeper. Orick, Trinidad, Henley's Ranch, and Beswick.

Sitta carolinensis aculeata. Slender-billed Nuthatch. South Yallo Bally, Spanish Springs Camp (Beswick).

Sitta canadensis. Canada Nuthatch. South Yallo Bally, Spanish Springs Camp (Beswick).

Penthestes gambeli. Mountain Chickadee. Common at South Yallo Bally, Spanish Springs Camp (Beswick).

Penthestes rufescens. Chestnut-backed Chickadee. Crescent City, Alton Junction, Rio Dell, Eureka.

Chamaea fasciata phaea. Northern Wren-tit. Few seen at Crescent City.

Chamaea fasciata rufula. Ruddy Wren-tit. Tolerably common at Marshalls.
Psaltiriparus minimus californicus. Sacramento Bush-tit. Beswick in garden.
Regulus satrapa olivaceus. Western Golden-crowned Kinglet. Beswick (high ridges) Crescent City, Alton Junction, Rio Dell, Henley's Ranch.

Myadestes townsendi. Townsend Solitaire. Quite common in Canadian Zone about Beswick.

Hyllocichla guttata slevini. Monterey Hermit Thrush. South Yalho Bally, (identified by Biological Survey).

Hyllocichla guttata guttata. Alaska Hermit Thrush. Beswick, September 18; Crescent City, October 13, (identified by Biological Survey).

Hyllocichla ustulata ustulata. Russet-backed Thrush. Camp Meeker.

Merula migratoria propinqua. Western Robin. Common on South Yalho Bally. Beswick, Orick, Alton Junction, Rio Dell.

Ixoreus naevius. Varied Thrush. Henley's Ranch.

Sialia mexicana occidentalis. California Bluebird. Beswick, Orick, Trinidad, Alton Junction.

Sialia arctica. Mountain Bluebird. Common on South Yalho Bally moving about in restless flocks and uttering a plaintive, melancholy call. Young in the juvenal plumage seen.

Lake Forest, Illinois.

AN ARIZONA NEST CENSUS

By F. C. WILLARD

I WAS particularly impressed on my arrival in Tombstone some years ago, by the almost total absence of trees. A few scattering umbrella trees with a scant score of small cottonwoods were all that graced the city except a cluster that stood by themselves at the northern edge.

The residence of Mr. F. N. Wolcott is shaded by several good-sized cottonwoods with a fringe of small umbrella trees and mulberries lining the fence. A couple of fig trees, a peach and a weeping willow complete the list which is pieced out by climbing roses and various other climbing vines.

Numerous small birds find this haven as grateful, apparently, as we of the human kind. I was much interested this past year in the numerous bird homes built there.

A pair of Vermillion Flycatchers had their first nest on one of the branches of the largest cottonwood, about forty feet from the ground. In a honeysuckle almost under their domicile were two nests of the House Finch, while two others were in a large rose covering one side of the house.

In a dead stub of the willow a Baird Woodpecker reared a hungry brood. Another tall cottonwood was well tenanted with a pair each of the Cassin Kingbird, Bullock Oriole, Arizona Hooded Oriole, and several pairs of House Finches whose exact number I was never able to determine. A Costa Hummer had her nest in a smaller cottonwood near by.

A little later several pairs of Canyon Towhees forsook the brush of the adjacent gulches and gathered among these trees. One cottonwood held three occupied Canyon Towhee nests and two of the Arizona Hooded Oriole at one time in June, and at the same time there were three other occupied nests of the Canyon Towhee

and two of the Oriole in other trees. One Towhee also had its nest in an ivy on the front porch. She was very shy, and even when the eggs were hatching, would leave the nest as we passed in and out of the house.

Several Mockingbirds began nests and three broods were raised during the season by various pairs of this bird. A Sonora Yellow Warbler occupied the top of the tallest tree and a Plumbeous Gnatcatcher partially completed its nest in an umbrella tree. Black-throated Sparrows were always present but built their nests in the scrubby greasewood and catclaw just outside the fence, where I found several nests with eggs or young birds. A Say Phoebe spent most of her time there catching insects for her nestful in an adobe wall across the street. A couple of pairs of Cactus Wrens filled thick bunches of twigs in one of the trees with their baskets of hay, and quarreled with each other and the kingbirds. Several old oriole nests were occupied by the House Finches.

To sum up, there were on this small space, 120 by 150 feet, six or more pairs of House Finches, three of the Mockingbird, four Arizona Hooded Oriole, one Bullock Oriole, one Vermilion Flycatcher, one Costa Hummer, seven Canyon Towhee (with seven occupied nests at one time), two Cactus Wren, one Baird Woodpecker, two Cassin Kingbird—a total of twenty-eight pairs all of which raised one or more broods of young.

Tombstone, Arizona.

THE NEW RESERVES ON THE WASHINGTON COAST ^a

By WILLIAM LEON DAWSON

SOME surprise has been expressed at the recent creation by Executive order of four bird and animal preserves off our Northwestern coast. It was a case, in fact, in which the Audubon Societies, supported by the Federal authorities, were able to act before extensive damage had been done (by the white man at least) instead of decades after—as has been the rule because of the “times of ignorance.” Messrs. Finley and Bohlman had ably exploited the interests of the Three Arch Rocks, now formed into a reserve of the same name off the coast of Oregon; but it was not generally known, except to officials and inattentive settlers, that extensive colonies of nesting sea-birds existed along the ocean coast of Washington.

In July, 1906, the writer, accompanied by wife and child, undertook a canoe trip along this coast with a view to determining the ornithological resources of the major rocks and islands, some one hundred and thirty in number, which lie scattered along the coast between Moclips, the terminus of a recently completed Northern Pacific spur, and Cape Flattery, at the entrance of the Straits of Juan de Fuca. The weather was unusually propitious and we were able to reconnoiter practically all of the islets and to visit the more important ones. Early in June of the present year, accompanied by Professor Lynds Jones of Oberlin, I revisited these islands, proceeding southward via canoe from Neah Bay as far as Destruction Island, and returning by the same course toward the end of the month. At Carroll Islet, in the Quillayute Needles Reservation, we tarried several days, and the beauties of that miniature paradise must form the theme of a later report.

^a NOTE.—Hastily prepared by special request on the eve of publication. Mr Dawson will present a fuller account of his visit to the foremost of these bird islands, under the title “Bird-life on Habaahlaych,” in a future number of THE CONDOR.—Edd.

The ruggedness of this coast is occasioned apparently by a great fault, or crack in the earth's crust, running roughly north and south. The sea-floor having been dropped to westward, the upturned edges are left on shore at the mercy of the waves. Moreover, the shore line is complicated by transverse folds of rock, the precursors of the Olympic Mountains to the eastward; and these are usually marked, off-shore, by a chain of islets in descending series, the outermost member of the series being the most denuded, and the innermost being mere detached fragments of the mainland with forest crowns intact. It is thus that the more than six score of islets, which rise above the spray-line, are grouped into nine principal systems, roughly corresponding to the chief promontories.

Because of their proximity, considered as a whole, to the Olympic Mountains, and because they are in a sense the by-products of the same orogenetic movement, I have proposed for these islands the name Olympiades (pronounced Olympiah-diz). The name will be all the more convenient now that they are arbitrarily divided into three administrative groups.

All the islands between Gray's Harbor and the Straits of Juan de Fuca are cov-



A WHITE-CRESTED CORMORANT ROOKERY; QUILLAYUTE NEEDLES RESERVATION

Photo by W. Leon Dawson

ered by the executive orders, save Destruction and Tatoosh, which are already occupied by Government lighthouses, and upon which, presumably, the same measure of protection will be enforced by the Lighthouse Board. James Island, altho specified in the orders, is virtually a part of the mainland, and is already occupied for gardening purposes by the Quileute Indians. With these exceptions, none of the Olympiades has any economic value, save that of bird propagation or as a lounging place for sea-lions.

Those islets which are not fully denuded by the combined action of the elements and the sea-birds, are covered with a dense growth of bushes, chiefly a dwarfed salmon berry and salal. This crown invariably affords cover for the Rusty Song Sparrow (*Melospiza cinerea morphna*) and occasionally for the Sooty Fox Sparrow (*Passerella iliaca fuliginosa*). On Destruction Island, Russet-backed Thrushes (*Hylocichla ustulata*), Lutescent Warblers (*Helminthophila celata lutescens*), Yellow Warblers (*Dendroica aestiva*), Barn Swallows (*Hirundo erythro-gaster*), Western Winter Wrens (*Olbiorchilus hiemalis pacificus*), and Rufous

Hummers (*Selasphorus rufus*) are also included among the resident land birds; while the tree-crowned islets near shore support the ordinary fauna of the mainland. Ravens and Northwest Crows, Peale Falcons and Sparrow Hawks lay the entire region under tribute, but the Corvids, at least, nest invariably upon the mainland. The Olympiades boast twelve species of nesting sea-birds, as follows:

Hæmatopus bachmani. Black Oystercatcher. At least one pair—usually no more—of these noisy fowls occupies every major rock among the Olympiades and every reef which lifts a head, say, twenty-five feet above the surf. The larger islets may support half a dozen pairs at once, and Destruction Island has about twelve. They usually nest upon the bare rock, and they prefer a station at the summit of the tide-washed shoulder or "water-table" of the island. Here their eggs fall an easy and frequent prey to that indefatigable connoisseur, the Raven.

Larus occidentalis. Western Gull. Colonies of this species occupy the chief rocks of the Copalis Rock Reservation, but the bird is only casual northward, where it is supplanted by *glaucescens*. In the great Glaucous-wing colonies, which oc-



ALEXANDER ISLAND, QUILLAYUTE NEEDLES RESERVATION

Photo by W. Leon Dawson

cur on Wishalooth and Carroll (in the Quillayute Needles Reservation) a few typical Westerns may be seen, and between these and true *glaucescens* every gradation appears to exist. I took no specimens, but if appearances count for anything there are ten "mulattoes" to one full-blooded darky Western, on Carroll.

The Quinault Indians have plundered the colonies on Split Rock and Willoughby for ages, and one of the first effects of the order will be to stop that. The gulls have become very wary, not to say discouraged, and a thousand might cover the breeding population north of Copalis Rock proper (of which I have no information).

Larus glaucescens. Glaucous-winged Gull. Gulls, like Baird Cormorants, nest in scattering fashion wherever opportunity offers. From one to forty pairs, therefore, may be found about every principal rock north of Destruction Island. They colonize extensively, however, upon Cake Rock, which is nearly inaccessible; Dohodaaluh; Wishalooth, Carroll Islet (Habaataylch); White Rock (Peechwah); Old Rock (the outermost member of the Flattery Rock group); Father and Son;

and Silversides (the outermost member of the north line of the Point-of-the-Arches group). The largest colony, numbering several thousand, appears on Wishaloolth (unfortunately listed in the Executive order as "Bald Island"). The name is unpardonable because of its banality. Please do not repeat it), which is a mountain range in miniature and one of the most weirdly picturesque of the Olympiades. A modest estimate of the total number of this species among the Olympiades is 10,000.

Like the Westerns the Glaucous-wings have suffered much from Indian depredations. The Siwash has been reared on gull omelette or gull fricassee or both at once, and the deprivation will undoubtedly work some hardship. The Quileutes and Ozettes are, however, for the most part, peaceful, law-abiding folk, and I have found them highly trustworthy.

Phalacrocorax dilophus cincinnatus. White-crested Cormorant. Something like a dozen colonies were found, confined of necessity in each case to the sharp ridges or to the barren acropolis itself. North Rock affords a typical instance.



WISHALLOOLTH: SITE OF THE LARGEST GLAUCOUS-WINGED GULL COLONY;
QUILLAYUTE NEEDLES RESERVATION

Photo by W. Leon Dawson

Here on the very summit occurs the largest colony of the coast, numbering near a hundred pairs.

The Shags have suffered not a little from the native egg hunters, but they have suffered more from Ravens. Curiously enough, I know of no instance in which their eggs or young have been molested by Glaucous-winged Gulls.

P. penicillatus. Brandt Cormorant. Four colonies were found, one of some fifty birds on the summit of Grenville Arch; one of fifty on Ghost Rock (not "Cohort" Rock—*vide* "Pacific Monthly", April 1907, p. 381); one of fifty-eight on the crest of Jagged Islet, since deserted; and one of about the same number as the last on "the pinnacle" (Paahwoke-it) west of Carroll.

P. pelagicus resplendens. Baird's Cormorant. The Baird Cormorant is the ubiquitous bird of the Olympiades. Not a sea-wall but has some niche or pedestal or boss, where this intrepid shag may "lay her young"—intrepid, that is, where only the sea is concerned, but timorous past all reason before mankind. She

usually manages to find some inaccessible place to put her eggs, but she quits the nest on the slightest provocation, or none, and the Raven laughs in his sable sleeve. An estimate of 6,000 would scarcely cover the Baird Cormorant population.

Oceanodroma kœdingi. Kœding Petrel. Petrel cities exist on Erin (off Grenville Point), Alexander Islet, Dhuoyuatzachtahl, Wishaloolth, Tatoosh, and Carroll. The last named is a mere village of some hundreds. The metropolis is evidently on Dhuoyuatzachtahl, where in the space of an acre perhaps 40,000 of these eery sea-waifs nest. Very possibly other colonies may be found on such rocks as Cake, Rounded Islet, and Silversides, as these were not minutely inspected.

Strangely enough, no Fork-tailed Petrels (*Oceanodroma furcata*) were seen along the entire coast, altho they are said to abound on the Oregon rocks.

Lunda cirrhata. Tufted Puffin. Many of the Olympiadic islets have sloping grass-covered sides and these are invariably occupied by Puffin burrows. Thirteen major warrens were noted, and of these the largest occurs on Carroll, whose Puffin population in 1907 we estimated at 10,000. Puffin burrows are usually easy of access, inasmuch as the more precipitous rocks are generally denuded; but now and then one sees a high-hung colony as safe as tho transplanted to Elysium. Contrary to the experience (?) of certain imaginative writers, I have found these birds absolutely silent.

Cerorhinca monocerata. Rhinoceros Auklet. The only colony of this bird appears on Destruction Island, whose slanting sides, grass-covered, brushy, or barren, are completely given over to them. This island, unlike the remaining members of the Olympiades, is composed of glacial, or glacio-alluvial, deposits in place, a mere detached bit of the mainland floor; of a piece with the Hoh valley four or five miles away. On this account, therefore, it offers asylum to birds which insist on driving long tunnels—ten to fifteen feet long in some instances—and the Auklets on Destruction must number close on to 10,000.

Ptychoramphus aleuticus. Cassin Auklet. Because of its early nesting this bird was overlooked in July, '06. In June we found them upon Dhuoyuatzachtahl, Alexander, and Carroll, and they doubtless occur in season at other places.

Certain cries heard on Tatoosh Island on the night of June 4th we were not able to investigate because of weather conditions, but suspected Cassins.

Cephus columba. Pigeon Guillemot. Not common along this coast. Perhaps not above fifty pairs to be found—these chiefly at Grenville Arch, Willoughby, Destruction, and Carroll. One bird nesting on one of the sandstone reefs which guard Destruction Island, had squeezed herself into so narrow a chink that she was glad to call one egg a "set."

Uria troile californica. California Murre. Murres do not occur in great numbers. More occur upon Carroll Islet and its adjacent pinnacle, Paahwoke-it, than elsewhere; but an estimate of a thousand would cover them. The crown of the Grenville Pillar holds perhaps 500, and 300 more find lodgment on Willoughby. Apart from these three stations only small groups of ten or a dozen pairs may be found.

As a result of the July reconnoissance an estimate of 40,000 was placed upon the entire sea-bird population of the Olympiades, other than the Petrels. In June last we were inclined to scale up Gulls and Baird Cormorants one-fourth, Puffins and Rhinoceros Auklets one-half, leaving the total, including Cassin Auklets, at nearer 60,000. The Kœding Petrels, of course, constitute the element of uncertainty, but an estimate of 100,000 will at least represent the "order of magnitude" of their numbers. Altogether an estate well worth preserving by Uncle Sam for Uncle Sam's nephews, of whom we are gratefully which.

Seattle, Washington.

FROM FIELD AND STUDY

Field Notes From Central California.—*Passerella iliaca iliaca*.—One of these rare Eastern visitants was taken by the writer on the Big Sur River in Monterey County, California, on December 27, 1903. The specimen was shot accidentally while collecting some of the common Yakutat Fox Sparrows. The specimen is a full grown male in fine plumage and identical with a series of typical eastern birds which were in the California Academy of Science collection. The bird was identified by Mr. L. M. Loomis.

Troglodytes aedon parkmani.—A female specimen of the Parkman Wren was taken at Sur, Monterey County, California, on December 21, 1903. This bird is a common summer resident here but winters in the warm San Diegan district and this specimen was left behind for some unknown cause. The specimen is a female of the year, probably, and in rather poor plumage. The exceptionally warm winter may have had something to do with the lagging behind of this bird.

Zonotrichia albicollis.—I have to record an additional specimen to the list of winter visit records by this bird. A male bird was shot from a flock of Intermediate Sparrows at Petaluma, Sonoma County, on March 16, 1903. This specimen is in typical spring plumage; the brown stripes on the head being half moulting to white and black of the adult bird, while the ashy throat patch is about half white. This identification was confirmed by Mr. L. M. Loomis at the California Academy of Sciences.—J. R. PEMBERTON, *Stanford University, California*.

Dafila acuta Breeding at Buena Vista Lake, Kern Co., California.—During late May and early June, 1907, I examined two nests of *Dafila acuta*, each containing six eggs, at Buena Vista Lake. I also noted several females with broods of young just out of the nest. One set of six eggs, which for some reason had been deserted by the bird, I hatched under a hen at the dredger camp. The hen refused to accept the guardianship and several of the youngsters died. These I "made up" and are now in my collection.

There is no doubt of the authenticity of these records as communication with the Editor of THE CONDOR will verify. Anyone visiting Buena Vista Lake during May and June should find *Dafila acuta* fairly common.—C. B. LINTON, *Los Angeles, California*.

The Common Tern and Ruddy Turnstone in Southern California.—September 25, 1907, Mr. C. B. Linton of this city gave me two terns which he had taken that day at Alamitos Bay. One of these was *Sterna forsteri*, but the other which was an immature female, I believed to be *Sterna hirundo*. This identification has been confirmed by Dr. Richmond of the National Museum. Upon looking over the other terns which Mr. Linton had taken at the same time we found three more *hirundo*, the rest being *forsteri*.

September 20, 1907, at Sunset Beach, Orange Co. Cal., I took a female Ruddy Turnstone (*Arenaria morinella*) in fall plumage. This bird was with a flock of Black-bellied Plovers on the sandy beach.—G. WILLETT, *Los Angeles, Cal.*

Pacific Fulmar in San Diego Bay.—While rowing in San Diego Bay near Hotel del Coronado, November 4, 1906, I secured an adult male Pacific Fulmar. It was resting on the water about 40 feet from shore. My attention was first attracted to it by some children on shore who were pelting it with pebbles, the Fulmar paying no attention to them.—C. B. LINTON, *Los Angeles, California*.

Is the Mountain Bluebird Resident at High Altitudes?—During the latter part of February and early March of this year (1907), *Sialia arctica* was very numerous in and about Flagstaff, Arizona, altitude 6800 feet; in fact, the commonest bird. That period also covers the coldest weather for that locality. And as this bird is a known breeder in northern Arizona (San Francisco Mountains), can we not infer that they are resident in that zone?—AUSTIN PAUL SMITH, *Benson, Arizona*.

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of Western Ornithology

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EDITORIALS

The editorial staff of THE CONDOR has been strengthened by the addition of Mr. Robert B. Rockwell, of Denver, who becomes Associate Editor. This is fortunate, because the geographic range of our magazine includes a very large region (west of the Mississippi) and it is propitious that the work be represented at several separate points in our field. Mr. Finley represents us in Oregon and Washington, and now we have Mr. Rockwell pledged to advance our magazine's interests in the Rocky Mountain region.

We wish it understood by our contributors that there is no intended significance in the arrangement of articles in any issue, beyond the selection of what we consider the most suitable photograph for the frontispiece. Sometimes we try to have illustrated and unillustrated articles alternate with one another, but sequence in no wise indicates order of merit.

We learn that Mr. Robert Ridgway expects to leave about March first for a six months' visit in Costa Rica. Upon his return he will resume work on Part V of his "Birds of North and Middle America."

The first National bird reservation to be established on the Pacific Coast was formally ordered by President Roosevelt on October 14, last. The area set aside is Three Arch Rocks, a group of islets on the coast of Oregon. The bird-life of these rocks was studied by Finley

and Bohlman (see CONDOR Vol. VII, pp. 119-161) and its protection has resulted chiefly from the endeavors of these energetic members of the Oregon Audubon Society.

We are further informed that thru the efforts of Mr. Dawson, whose article on the subject appears on another page of our present issue, three more breeding places of sea birds, on the Washington coast, have been officially reserved. These three reservations extend from Copalis Rock to Cape Flattery inclusive, a distance of nearly one hundred miles. Proceeding from south to north they are named:

Copalis Rock Reservation, including "all small, unsurveyed and unreserved islands lying off the coast of the State of Washington in the Pacific Ocean between latitude 47 degrees 20 minutes north, and 47 degrees 29 minutes north" * * * "reserved and set aside for the use of the Department of Agriculture as a preserve and breeding ground for native birds and animals."

Quillayute Needles Reservation, extending from 47 degrees 38 minutes to 48 degrees 2 minutes north.

Flattery Rocks Reservation, extending from latitude 48 degrees 2 minutes to 48 degrees 23 minutes north. (The gap between the first and second reservations contains no islands.)

One of the most important factors in bird protection in Colorado is the State Bureau of Child and Animal Protection. This is a state organization with offices in the State Capitol Building which, under the efficient management of Secretary E. K. Whitehead, has accomplished more along this line than any other Humane Society in the United States.

A circular, size 11 inches by 14 inches, has been printed on very heavy durable paper, 1000 of which have recently been posted in conspicuous places all over the state, by this organization. The publicity thus given to the law protecting birds and their nests and eggs cannot fail to have a far-reaching effect thruout the wilder mountainous sections of the state, where the game laws are little known and where officers of the law are necessarily few and far between.

Doubly efficient will this warning be on account of the fact that there are representatives of the State Bureau at nearly 300 points in the state, persons who are serving without compensation, and simply on account of their intense interest in this line of work. These people may be depended upon to see that these laws are enforced when they have the assurance that an active and aggressive organization is back of them.

Mr. Whitehead has gone on record as giving assurance to all interested parties that he will rigorously prosecute all violators of the bird law if sufficient evidence is furnished him. Consequently it is up to the bird students of Colorado to see that evidence of all violations of the bird laws is put in the hands of the State Bureau of Child and Animal Protection.

—R. B. R.

The following notice appeared in the *Portland Oregonian* for December 8, 1907:

"A consignment of European song birds was received last week by C. F. Pfluger, secretary of the Portland Songbird Club. The consignment consisted of song thrushes, chaff and goldfinches, black caps and skylarks. The birds were imported direct from the Hanover district in Germany and from England. Seventy pairs of the birds were placed in the aviary at the City Park to be sheltered until Spring, when they will be liberated. Sixty pairs of skylarks were also forwarded to bird clubs in Washington, Yamhill, Marion, Clatsop and Multnomah Counties, where they will later be set free.

"The Portland Club is also making arrangements for the importation of mocking birds, which are expected to reach this city early next Spring. Much good will result from the addition of these birds, as they are known to be effective insect exterminators, and are active, hardy and well adapted to the climate of this section."

Perhaps some such idiotic procedure as the above accounts for the record of the Chaffinch at Monterey (see *CONDOR* VIII, March, 1906, p. 58). The next thing we know we will have Chaffinches and Goldfinches to deal with along with the "English Sparrow problem." The Audubon Societies should bend their efforts against the introduction of foreign birds, if they wish to keep our native avifauna intact.

Mr. Finley suggests that the popularity of the introduction idea in Oregon is probably due to the importation of the "China Pheasant," so successful, at least from the sportsman's standpoint.

PUBLICATIONS REVIEWED

AMERICAN BIRDS | STUDIED AND PHOTOGRAPHED FROM LIFE | By WILLIAM LOVELL FINLEY | Illustrated from Photographs by | Herman T. Bohlman | and the Author | Charles Scribner's Sons | New York | 1907 (our copy received December 10, 1907). Pp. I-XVI, 1-256, 127 halftones on book plate paper. (\$1.50.)

This is the most attractive popular bird book of the year. In fact it contains the greatest number of photographic illustrations, and illustrations of the greatest scientific value, of any book we have ever seen. The following well-stated epitome of the scope of the book constitutes part of the Prefatory Note:

"An important and sometimes difficult phase in the study of bird life is to observe accurately and report without false interpretation the habits and actions of birds. The naturalist who uses the camera in the field often has the

advantage of backing his observations with proof (not an unimportant thing in nature writing of today), and if he produces good authentic photographs, one may be quite sure they were not secured without patient waiting and a careful study of his subjects.

"In this book no attempt has been made to include all the different bird families, but a series of representative birds from the hummingbird to the eagle has been selected. Each chapter represents a close and continued study with camera and notebook at the home of some bird or group of birds,—a true life history of each species. It is the bird as a live creature, its real wild personality and character, that I have tried to portray.

"Many of these studies were made in the West, but in the list of birds treated an effort has been made to get a selection that is national in scope. In the popular mind a song sparrow is a song sparrow from ocean to ocean, yet scientifically he represents over a dozen subspecies, according to the part of the country in which he lives. To the ordinary bird lover, however, a robin is the same east and west, and the same is true of the chickadee, flicker, wren, grosbeak, vireo, warbler, hawk, and others dealt with in the following chapters."

The twenty-one chapters are titled as follows: The Hummingbird at Home; The Chickadee; Photographing Flickers; The Yellowthroat; A Family of Grosbeaks; The Red-tailed Hawk; Jack Crow; The Owl, Bird of Night; Rearing a Wren Family; The Weaver of the West; Jimmy the Butcher-bird; The Warbler and His Ways; Kingfishers; Sparrow Row; Two Studies in Blue; Basket Makers, The Vireo and Oriole; Phoebe; A Pair of Cousins—Robin and Thrush; Gull Habits; In a Heron Village; The Eagle of Mission Ridge.

We feel a sort of pride in looking over this book, for it is a product of the West. Both Mr. Finley and Mr. Bohlman are western students, and the present results of their work is in no way inferior to that of the East or that of Europe. We heartily recommend the book to everyone. — J. G.

EVOLUTION AND ANIMAL LIFE | an elementary discussion of | facts, processes, laws and theories relating | to the life and evolution of animals | by | DAVID STARR JORDAN | President of Leland Stanford Junior University | and | VERNON LYMAN KELLOGG | Professor of Entomology, and Lecturer in Bionomics | in Leland Stanford Junior University | [quotation] | [vignette] | New York | D. Appleton and Company | 1907 [our copy received Oct. 1, 1907]; pp. I-XII, 1-490, 3 colored plates (of birds), 298 text figures.

No person can be a thoroughly successful special-

ist in any one field of natural history without at the same time knowing something of the general problems, laws and theories of biology. No student of birds should pursue his narrow line of study, oblivious of the main results of work with the other classes of animals. The all-important facts and processes of organic evolution are as essential a feature of ornithological knowledge, as of a knowledge of insects, or fishes, or of plants.

In their new book, titled as above, Jordan and Kellogg present a well-selected series of facts bearing on the subject of evolution, derived from the latest work in both Europe and America. The early theories and arguments of Darwin, Lamarck and others, and the recent laws and theories of Mendel, Galton, DeVries, and Burbank, are succinctly presented. And the views of the authors themselves appear to us to reflect the very sanest of recent opinions on the many disputed points discussed. The treatment is popular, in the sense of being clear and easily understandable by the lay reader. The abundant illustrations are lessons in themselves.

In fine, we would recommend the book as the very best and most up-to-date on the subject of evolution, a book that every bird student should read and study, in order to have a broad foundation-knowledge upon which to build his ornithology.

We regret to note not a few typographical or perhaps chirographical slips, such as doubtless resulted from hurried proof-reading. A few minor errors are noticeable; such as the nest of "Rufous hummingbird" photographed at Stanford University, (Fig. 274) very improbably that species, but the Allen hummingbird (*Selasphorus alleni*). Nor have we ever seen any species of "Aythya" marked like those in Fig. 276. The composition in places could have been smoothed over a bit.

But the subject-matter and mode of presentation of the book cannot be criticized, as far as we are concerned. We urge those of our readers who wish to acquire a familiarity with the latest evolutionary views, to make use of this, the best exposition of the entire subject as it now stands to be obtained.—J. G.

THE BIRDS OF NORTH AND MIDDLE AMERICA: A Descriptive Catalogue [etc. 7 lines]. By ROBERT RIDGWAY | Curator, Division of Birds | — | PART IV. | Family *Turdidae*—Thrushes. Family *Zeledoniidae* | Wren-Thrushes. Family *Mimidae*—Mockingbirds. Family *Sturnidae*—Starlings. Family *Ploceidae* | Weaver Birds. Family *Alaudidae*—Larks. Family *Oxyrruncidae*—Sharp-bills. Family *Tyrannidae*—Tyrant Flycatchers. Family *Pipridae*—Manakins. Family *Cotingidae*—Chatterers. | — | Washington: | Government Printing Office. | 1907. (our copy re-

ceived August 24) = Bulletin U. S. N. M. No. 50, Part IV, | pp 1-xxii, 1-974, pl. I-XXXIV.

In the four volumes of this great work now published there have been described 1,675 species and subspecies, or somewhat more than half the total number of North and Middle American Birds." The amount of work represented in the 4000 closely printed pages already issued is marvelous, when we bear in mind that it means the labor of one man. The synonymies alone constitute an undertaking of great magnitude. There is not the least doubt in our minds but that Mr. Ridgway's work is not only the greatest in point of size, but the most thoro, of all the systematic treatises on American birds ever issued.

The title, above quoted, indicates the scope of Part IV. We will simply call attention to a few of the points of interest in regard to Western species.

Mr. Ridgway enters in full standing both the Monterey Hermit Thrush (*Hylocichla guttata slevini*) and the Sierra Hermit Thrush (*H. g. sequoiensis*) while the alleged *Hylocichla ustulata cedica* is included under *H. ustulata ustulata*. *Ixoreus naevius meruloides*, a supposed northern form of the Varied Thrush, is considered inseparable from *Ixoreus naevius* proper. *Planesticus* is introduced as the genus name for the Robin. The range of the San Pedro Bluebird (*Sialia mexicana anabetae*) is extended to include the "mountains of San Diego and southern Los Angeles counties, California, and along the eastern slope of the Sierra Nevada as far as Mount Lassen." The Pasadena Thrasher (*Toxostoma redivivum pasadenense*) is not considered separable from the California Thrasher (*T. r. redivivum*). The Horned Larks are entered practically as worked out by Oberholser. A sort of dichromatism is ascribed to certain Empidonaces, as *hammondi*, *wrightii* and *griseus*. This discovery is of extreme interest; yet it still more complicates the differential characterization of these difficult species. The genus *Contopus*, for the Wood Pewees, becomes *Myiochanes*.

In lack of the long-delaying new A. O. U. check-list, it seems to us that students can do no better than follow Ridgway's lead implicitly in matters of nomenclature. In fact we do not know but what the check-list had better give way for the present to the "Birds of North and Middle America," leaving the latter as the only recognized authority.—J. G.

RESEARCH IN CHINA | Expedition of 1903-04, under the direction of Bailey Willis | — | REPORT ON ZOOLOGY | by | ELIOT BLACKWELDER | [extracted from Carnegie Institution of Washington Publication No. 54, | Research in China, Volume I, Part II, pages 481-508, 6 plates, [vignette] | Washington, D. C.: | Pu

lished by the Carnegie Institution of Washington | June, 1907.

This paper presents rather an imposing appearance to have been based on such meager data. Lists of Amphibians, (2), Reptiles (5), Birds (130) and Mammals (5), are given, and yet only 75 specimens of all the vertebrates together are stated to have been obtained; and the author was evidently quite unfamiliar with the biota of the region. It is no wonder that nearly half the species are more or less in doubt. Dr. C. W. Richmond deserves the credit for naming the bird-skins, which were submitted to him for determination. One bird, *Olbirochilus fumigatus idius* is described by him as new. The six colored plates are by J. L. Ridgway.—J. G.

BIRDS OF LABRADOR, by CHARLES W. TOWNSEND, M. D., and GLOVER M. ALLEN [=Proc. Boston Soc. Nat. Hist. Vol. 33, No. 7, pp. 277-428, pl. 29; July, 1907].

This is a review of our knowledge of the ornithology of Labrador, based upon all previously published accounts, together with some new matter resulting from a visit by the authors in 1906. An extensively annotated list shows that 259 species have been accredited to Labrador. Of these, 213 are authenticated species, 2 are extinct, and 44 doubtful or erroneous. The historical phase of the subject is accorded detailed attention, and we are given most interesting quotations from the records of the early explorers. The authors also discuss the "Faunal Areas" of the region. The Arctic, Hudsonian and Canadian life zones are found to be represented. The entire paper shows the results of skilled and conscientious investigation and raises the standard which faunal papers of the future will be expected to reach.—J. G.

EIGHTEEN NEW SPECIES AND ONE NEW GENUS OF BIRDS FROM EASTERN ASIA AND THE ALEUTIAN ISLANDS, by AUSTIN H. CLARK [=Proc. U. S. Nat. Mus. Vol. XXXII, pp. 467-475; June 15, 1907].

This paper includes the description of a new Rock Ptarmigan, from Adak Island, one of the central links in the Aleutian Chain. The bird is called *Lagopus rupestris chamberlaini*, and is characterized [in nuptial plumage of male?] as being the grayest and one of the lightest of the Aleutian insular forms of the Rock Ptarmigan.—J. G.

THE BIRDS OF IOWA, by RUDOLPH M. ANDERSON [=Proceedings of the Davenport Academy of Sciences Vol. XI, pages 125-417, 1 map; March, 1907].

Anderson's "The Birds of Iowa" is an admirable paper thorough, the best gotten up state list that has come to our notice. It has the stamp of scholarly workmanship. There is

evidence of long-continued research into the literature of the State, and careful attention to detail. The typography is excellent. Iowa ornithologists are to be congratulated upon so satisfactory an exposition of their avifauna.—J. G.

A PRELIMINARY CATALOG | OF THE | BIRDS OF MISSOURI | by | OTTO WIDMANN | St. Louis, Mo. | 1907 [our copy received Dec. 7, 1907]. Pp. 1-288.

While the word "preliminary" occurs in the title, this book is really an exhaustive treatise on the subject of the distribution and migration of Missouri birds. It seems to be an implied intention on the part of the author to publish later a report covering the life histories of the birds of the region, and if this is carried out with the same fidelity as the present "preliminary" report, we will have access to an ideal compendium of Missouri ornithology.

The present Catalog contains 383 species, of which 162 are breeders. Of the 383, 30 have not been actually taken within the State, thus leaving 353 fully authenticated species. Each species is annotated with localities and dates of occurrence, and with the rarer species the notes are given in detail.

Preceding the Catalog proper is an Introduction followed by a Bibliography, Explanations (of terms employed and method of treatment), and discussions of Faunal Areas, The Climate, Topography, Decrease of Birds and Bird Protection. Each of these topics is handled in a clear, concise manner, giving one the impression that the writer has thoroly studied his subject before attempting to publish upon it. The latter, it may be remarked, is not an overly common thing in American ornithology in the present age. Mr. Widmann is only now beginning to give us the general results of his twenty years of study upon Missouri birds, and we therefore look up to him as being in a position to handle his subject authoritatively.—J. G.

VOLUME III of THE WARBLER, published by MR. JOHN LEWIS CHILDS, came to hand in November. It consists of 56 pages, besides a colored frontispiece. There are six half-tones of nests and eggs. Two of these show eggs of the Harlan Hawk taken in Iowa. The excellent colored plate and brief accompanying note pertain to the eggs of the Santa Catalina Partridge (*Lophortyx catalinensis*). P. B. Peabody follows with two illustrated articles on "The Breeding of the Arctic Towhee" and "Rock Wren the Cliff Dweller." J. W. Clayton furnishes "Field Notes from the Upper Penobscot, Maine." Two essays by John Bachman, written fully 65 years ago, one of which is printed here for the first time, show some decidedly good field observations on the habits of Vul-

tures and the migration of birds in general. Charles R. Keyes tells of the "Breeding of Harlan's Hawk in Iowa." Mr. Childs recounts some "Long Island Bird Notes for 1907." And the same author publishes extracts from an old manuscript consisting of "A Marvelous Collection of Unpublished Bird Songs." The one on the Bobolink, however, has long been a favorite selection for recitation. It was published in the *Century Magazine* about 1890. The Volume closes with a brief account of "The Childs' Library of North American Ornithology. We judge this to be now the finest private bird library extant.—J. G.

THE DEVELOPMENT OF NESTLING FEATHERS, by LYNDY JONES (=Laboratory Bulletin No. 13, Oberlin College; Oberlin, Ohio; 1907. [November]; pp. 1-18, pl. I-VIII [=142 figg.]). According to Mr. Jones' statement the purpose of this paper is to "give a more complete account of the development of down," and to do away with any conception which may be held at present that the down is a structure distinct from the first definitive feather. While admitting that a continuity between the two has been recognized, he maintains that the down feather is not, as considered by most writers, a relatively separate and distinct feather, but is simply the distal end of the first definitive feather.

The first part of the paper is given over to a discussion of materials and methods. The author then goes on to trace the histological development of nestling down, which differs to some extent from that of the definitive feather. For example, the epitrichial layer of the skin forms the sheath of the down, but takes no part whatever in the formation of the first definitive feather. The development of the barbs and barbules in the down is essentially the same as in the first definite feather, tho as Mr. Jones points out the developing down fundament has fewer ridges and a shorter diameter than the developing definite feather fundament, and the down barbules are never provided with hooked barbels. Further, he finds no chief ridges in the developing down, whereas in the definitive feather they mark the place where the shaft will later be developed. Barbules, however, are found on all down barbs except on certain spike-like feathers from the cuckoo. In the developing down feather the ridges extend from their proximal beginning the full length of the down, while in the definitive feather each ridge extends from its proximal insertion on the developing rachis only a part of the way to the distal end of the feather germ. This is one of the main distinctions between the down and the definitive feather.

In the latter part of the article the relation of the down to the first definitive feather is taken up more in detail, and several series of cross-sections are figured to show the manner of

passing of the so-called down barb-vanes (the barb with its barbules) into the definitive barb-vanes. In most birds the down barb-vane passes directly into one or more definitive barb-vanes. Occasionally in the true down of certain altricial birds a "quill" is formed, but the author asserts that this is due more to reduced blood-supply and the drying influence of the air than to any innate tendency to form a true quill, and that it may often be split up if pressed between two hard surfaces.

Mr. Jones asserts that the first feather to appear in the ducks is made up of the true first down plus the first definitive feather. He thus very cleverly advances this instance as an example of the primitive relation between the down feather and the first definitive feather.

Altho the paper presents the facts of the case in a new light, it does not seem to a superficial observer that the proposition that the down is not a relatively separate feather is proved. The growth of the down and the succeeding definitive feather has always been considered to be continuous. Dr. Dwight, in speaking of down, says, "It is last seen as waving filaments at the apices of the feathers which succeed it." Mr. Jones in the present paper shows a large series of photographs of first definitive feathers bearing down filaments at their tips. Students of feathers have always recognized the fact that the down is borne directly at the end of the first definitive feather, and yet have considered the down a relatively separate feather. The down feather, and all the definitive feathers succeeding it, grow from the same papilla. Referring to the second crop of definitive feathers (the first winter plumage) Dr. Dwight remarks that a feather of the juvenal plumage may occasionally be found borne at the end of a feather of this dress! It would appear to be just as true, then, that morphologically the first definitive feather is the distal end of the second definitive feather as it is that the down is the distal end of the first definitive feather. The fact that the ecdysis may be discontinuous between the first and second definitive feathers alters the case morphologically not a whit.

In support of his point that the first feather of ducks represents a combination of the down and first definitive feather of other birds Mr. Jones says that its stages of development and growth cover the period commonly taken by the development of both the down and first feather in other birds. The question of time proves nothing, however. The conception as commonly held that the first feather is the down, and that the second feather is the first definitive, seems to be more in accordance with the facts. The first feather is modified as a covering for the young. In most birds no thick covering is necessary, but in ducks, which need such a covering a down feather with a shaft is developed. Again, why should the structure and development of Anserine first feathers be regarded as indicating the primitive structure and mode of differentiation of any typical first feather rather than the structure and development of, say Passerine first feathers? Both have in all probability diverged widely from the primitive common type, and now each is highly specialized to serve its own

purpose. Allowing, however, that the first feather of ducks is the first definitive feather plus the down, the relation between the first definitive and the second definitive is much clearer. In figures 90-96 Mr. Jones shows photographs of the second feather of ducks, which is the second definitive according to his assertion, bearing at its distal end the first feather, which he regards as the combined down and first definitive. We see then that the relation between the first and second definitive feathers is practically the same as that between the down feather and the first definitive. Yet these are all regarded as relatively separate feathers, and certainly deserve to be in the light of all known facts.

The paper is interesting as showing the mode of connection between the down barb-vanes and the definitive barb-vanes. It would be instructive for some future investigator to explain and figure in detail the connection between the first and second definitive feathers.—
WALTER P. TAYLOR.

MINUTES OF COOPER CLUB MEETINGS

SOUTHERN DIVISION

MAY—The Southern Division of the Cooper Ornithological Club, met at Throop Polytechnic Institute, May 30, 1907. The first part of the evening was filled up with informal consideration of topics of interest, the meeting being called to order about nine o'clock, with President Morcom in the chair. Walter Taylor was selected as secretary *pro tempore*.

The name of Cyril H. Bretherton was proposed for membership by Mr. Grinnell for Mr. Law. Mr. Watson, who is about to leave for Denver, Colorado, handed in several names of possible members of the club.

As there was no more business to be considered the meeting adjourned, and for the rest of the evening general ornithology and projected summer outings were discussed.

Members Morcom, Howard, Chamberlain, Judson, Watson, Lamb, Taylor, Willett and Grinnell were present.

WALTER P. TAYLOR,
Secretary pro tem

AUGUST.—A specially called meeting of the Southern Division was held in the City Clerk's office, Los Angeles, August 30, 1907. President Morcom called the meeting to order at 8:30 P. M. with the following attendants: Dr. T. S. Palmer, J. H. Gaut, H. T. Clifton, O. W. Howard, G. Willett, G. F. Morcom, L. Chambers, Alphonse and Antonin Jay, C. E. Cosper, J. E. Law, J. Grinnell, H. J. Lelande.

The main interest of the evening was centered in the presence of Dr. T. S. Palmer, of the U. S. Department of Agriculture. Dr. Palmer spoke to the Club at length concerning the scope of work of the Bureau of Biological Survey, and especially of his own duties in connection with game preservation. He told very entertainingly of experiences in detecting illicit traffic in game, and of the institution and protection of National game refuges.

The matter was brought up of the establish-

ment of game preserves on our own coast. Several colonies of the Least Tern yet remain, and these deserve protection. It was thought that the readiest means would be thru efforts to induce private landowners to post and patrol their holdings.

Dr. Palmer was given a hearty vote of thanks for his cordial compliance with the invitation to talk to the Club, and the evening will long be remembered as one of the most enjoyable and profitable in the Club's history.

J. EUGENE LAW,
Secretary.

NOVEMBER.—The regular November meeting of the Southern Division was held in the offices of H. J. Lelande, City Hall, Los Angeles, Cal., Wednesday evening, Nov. 27, with members G. Frean Morcom, H. J. Lelande, Jos. Grinnell, H. T. Clifton, O. W. Howard, C. E. Cosper, Howard Wright, W. Chamberlain, Walter Taylor and J. E. Law present.

The minutes of the September meeting were read and approved, and Mr. Howard and Mr. Lelande, who were present at the October outing meeting, gave an oral report. They noted several additions to the list of Newhall, Cal., observations. This list will be published elsewhere. They also noted that the English Sparrow colony there is increasing.

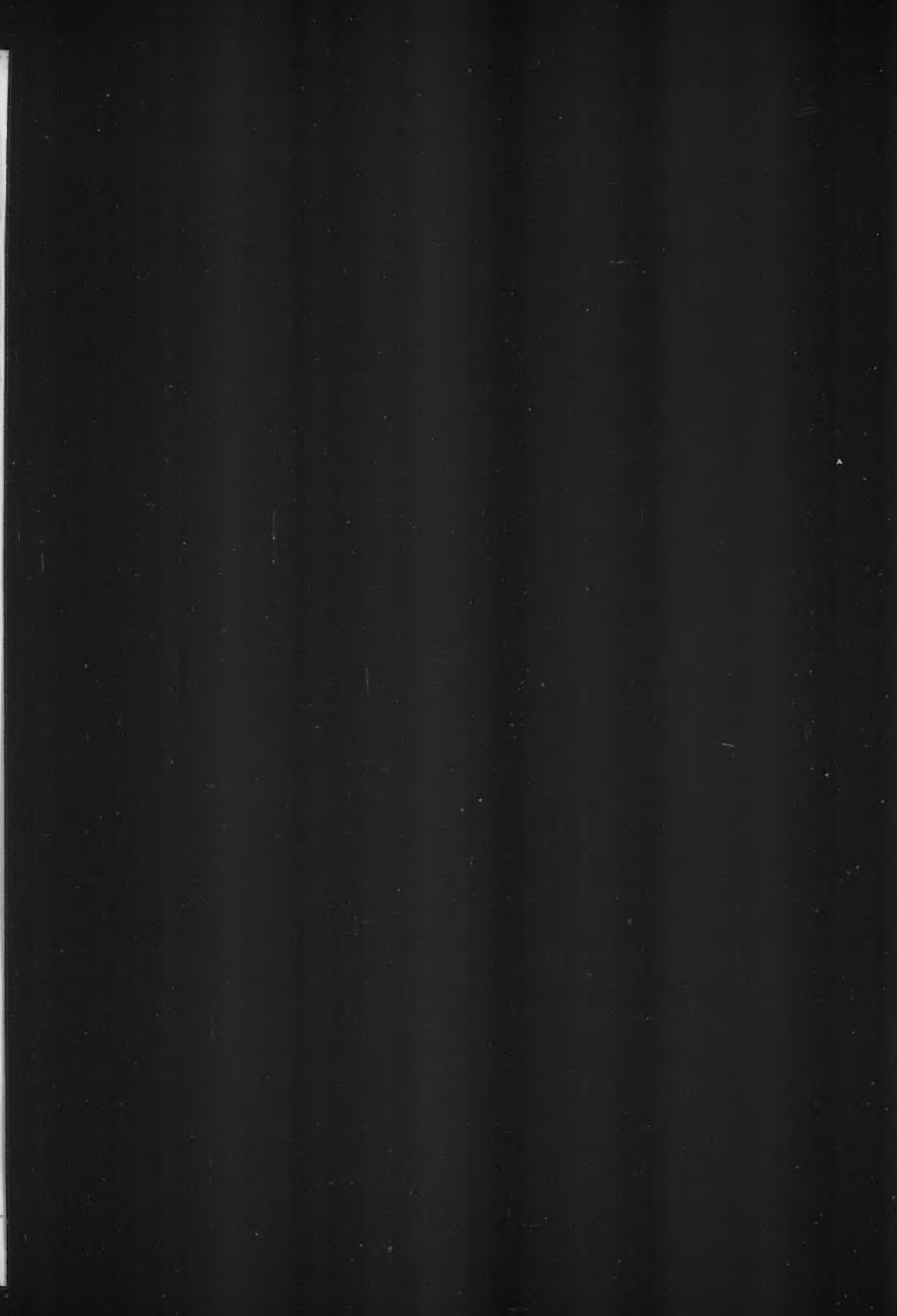
Applications for membership were proposed: C. O. Esterly, Ph. D., and L. A. Test, Ph. D., both of Los Angeles, Cal., and both proposed by Prof. Loye Holmes Miller; and Robert B. Rockwell, 1322 E. 13th Ave., Denver, Colo., proposed by Joseph Grinnell. In accordance with the By-Laws, action on these was deferred till next meeting. On motion, duly carried, the secretary was instructed to cast the unanimous ballot of those present electing to active membership Cyril H. Bretherton and R. Magoon Barnes, the latter subject to the approval of the Club-at-large owing to his non-residence in the State.

Mr. Grinnell proposed a vote of thanks to Mr. Clifton, the retiring business manager of THE CONDOR, for the faithful service rendered the Cooper Club during the years he has handled its finances, and for his very efficient management of its business affairs, until now the Club, and with it THE CONDOR, is in a most thriving condition. The motion was heartily approved by all present.

This being the last regular meeting before the annual election, nominations for 1908 were called for resulting as follows: For President, G. Frean Morcom; Vice President, H. J. Lelande; Secretary, J. Eugene Law, Treasurer, W. Lee Chambers.

A paper by Mr. F. C. Willard, Tombstone, Arizona, on the bird life in the vicinity of Tombstone, was read by the secretary in the absence of the author. Mr. Willard records some interesting local notes, and finds bird life much localized, particularly about a few cottonwoods and other trees on the edge of the city. In this little clump no less than 28 pairs of birds representing ten species raised their broods in 1907. Adjourned.

J. EUGENE LAW,
Secretary.



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